APPENDIX A

Applicable or Relevant and Appropriate Requirements

Excerpts from Applicable or Relevant and
Appropriate Requirements, extracted from the
Draft Final Groundwater Remedial Action Work Plan,
Operable Unit 2 Groundwater Remedy System
Expansion, Fort Ord, California (IT, 1999a)

Operable Unit 2 Applicable or Relevant and Appropriate Requirements

This appendix presents applicable or relevant and appropriate requirements (ARARs) for the OU2 groundwater remedy as extracted from the *Draft Groundwater Remedial Action Work Plan, Operable Unit 2, Groundwater Remedy System Expansion, Fort Ord, California*, Revision 0, Fort Ord, California (IT, 1999a).

1.0 Remedial Action Objectives

Remedial action objectives provide the basis from which ARARs are developed and remediation goals are established. The RAOs stated in the *Record of Decision, Operable Unit 2, Fort Ord Landfills, Fort Ord, California*, (OU2 ROD) (Army, 1994) and the subsequent *Explanation of Significant Differences, Operable Unit 2, Fort Ord Landfills, Fort Ord, California*, (OU2 ESD) (Army, 1995) are to

- Reduce risks to human health and the environment
- Comply with federal and state ARARs.

2.0 Applicable or Relevant and Appropriate Requirements

The ARARs described below are chemical-, location-, and action-specific for the groundwater remedy. The ARARs are identical to those used during the original OU2 groundwater remedy, and are "applicable" or "relevant and appropriate." These standards are designed to be protective of human health and the environment and to be technically achievable with existing analytical and treatment technologies. Protocols and measures that will be implemented to comply with the ARARs during the remedial action are also presented below.

2.1 Chemical-Specific Applicable or Relevant and Appropriate Requirements

VOCs regulated by the state and federal governments are present in the groundwater beneath OU2. The following chemical-specific ARARs were identified in the OU2 ROD (Army, 1994) for COCs present

- *Central Coast Region Water* Quality *Control Plan* (RWQCB, 1994)

  Portions of the *Central Coast Region Water Quality Control Plan* are ARARs, and groundwater is classified according to beneficial uses. Groundwater at OU2 is considered a potential drinking water source. The *Central Coast Region Water Quality Control Plan* establishes water quality standards, including beneficial-use designations, water-quality objectives to protect these uses, and implementation programs to meet the objectives.

- "*National* Primary Drinking Water Standards," Title 40 *Code of Federal Regulations* (CFR), Part 141

  Two chemical-specific drinking water standards exist that contain MCLs and have been promulgated under the Safe Drinking Water Act. Maximum contaminant level goals (MCLG) were also promulgated under the Safe Drinking Water Act.

The MCLGs above zero are considered chemical-specific ARARs under the National Contingency Plan (40 CFR §300.430[e][2][I][B]). When MCLGs are equal to zero, the MCL is considered to be a chemical-specific ARAR instead of the MCLG (40 CFR §300.430[e][2] [I][C]). Table 1-1 lists national primary drinking water standards for OU2 COCs.

- "State Primary Drinking Water Standards," *Title 22 California Code of Regulations* (CCR), Chapter 15

  California primary drinking water standards establish enforceable limits for chemicals that may affect public health or the aesthetic qualities of drinking water; however, only those state requirements that are more stringent than federal standards are ARARs. The State MCLs are summarized in Table 1-1.

- "Land Disposal Restrictions, Title 22 CCR, Chapter 16

  The Land Disposal Restrictions prohibit land disposal of specified untreated hazardous wastes and provides special requirements for handling such wastes. If listed or characteristic hazardous wastes are generated as part of the treatment process, then this requirement applies.

Compliance with these chemical-specific ARARs is presented in Section C-3.1.

2.2 Location-Specific Applicable or Relevant and Appropriate Requirements

Environmentally sensitive locations were identified during the OU2 Expansion biological survey. Endangered plant and animal species were also identified. The following are location-specific ARARs

- Endangered Species Act (ESA), Title 16, United States Code, Section 1531 et seq., as promulgated by Title 50 CFR Part 402, Section 7

  The ESA requires that any action authorized, funded, or carried out by a federal agency must ensure that it is not likely to jeopardize the continued existence of any endangered species or result in the destruction or adverse modification of habitat of such species that is determined to be critical. Fort Ord consulted with the Fish and Wildlife Service in accordance with the ESA.

- Fish and Game Code, Chapter 15, Article 15, Section 2090

  The Code requires written finding from the State Department of Fish and Game regarding the impact of disturbances on the viability of an endangered population.

Compliance with these location-specific ARARs is discussed in Section C-3.2.

2.3 Action-Specific Applicable or Relevant and Appropriate Requirements

Action-specific requirements apply to implementation of remedial activities, such as groundwater treatment and discharge, and soil handling, such as for trenches for conveyance piping or foundation excavations. The following are action-specific ARARs

- Monterey Bay Unified Air Pollution Control District (MBUAPCD), Regulations II and X, and National Primary and Secondary Air Quality Standards, Title 40 CFR, Part 150

  These regulations and standards establish requirements for sources of air pollution and the appropriate level of air abatement technology to be applied for specific chemicals that may be generated as toxic air contaminants. The remedial action must meet the substantive requirements of these regulations.

- "Standards Applicable to Generators of Hazardous Waste," Title 22 CCR, Chapter 12

  These standards are applicable if hazardous waste is generated at the site. The substantive portions of this regulation will apply and be complied with.

- State Water Resources Control Board, Resolution No. 88-63

  Resolution No. 88-63 specifies that all ground and surface water is an existing or potential source of drinking water unless total dissolved solids are greater than 3,000 milligrams per liter, the well yield is less than 200 gallons per day from a single well, or the groundwater is unreasonable to treat using best management practices or best economically achievable treatment practices. Under this resolution, the Upper 180-foot aquifer at OU2 is a potential drinking source.

- State Water Resources Control Board, Resolution No. 92-49

  Resolution No. 92-49 establishes policies and procedures for the investigation, cleanup, and abatement of waste. In accordance with these requirements, cleanup levels must be set at background levels or, if background levels are not technologically or economically feasible, at the lowest levels that are achievable. The USACE completed an economic and technical feasibility analysis pursuant to Resolution No. 92-49 and determined that cleanup to the MCLs is reasonable and satisfies this requirement.

- State Water Resources Control Board, Resolution No. 68-16

Resolution No. 68-16 establishes goals for the maintenance of existing groundwater quality. It also requires best practical control technology for discharges to high-quality water. Discharge levels were chosen by considering site-specific conditions, including the contaminants to be discharged, and the designated beneficial uses of the receiving water, available treatment technologies, and cost.

- Federal Safe Drinking Water Act, Title 40 CFR, Part 144, and California Toxic Injection Well Act, California Health and Safety Code §25159.24.

  Title 40 CFR Part 144 and the California Toxic Injection Well Act prohibit injection of contaminated water into or above a drinking water formation. Injection of treated groundwater into the source aquifer for the purpose of aquifer cleanup is exempted. For OU2, treated groundwater may be injected to the aquifer provided injected groundwater does not contain chemical concentrations above the ACLs (Table 1-1).

Compliance with action-specific ARARs is described in Section C-3.3.

3.0 Compliance with Applicable or Relevant and Appropriate Requirements

Implementing the OU2 groundwater remedy is protective of human health risks associated with potential exposure to groundwater and complies with the ARARs as specified in the OU2 ROD (Army, 1994) as presented in Section 2 above.

3.1 Chemical-Specific Applicable or Relevant and Appropriate Requirement Compliance

Implementing the RAOs will lower the 11 COCs in the A-aquifer and Upper 180-foot aquifer so that human health risks are reduced and the ARARs are satisfied. Compliance with the chemical-specific ARARs during remedial action activities are discussed below:

- Central Coast Region Water Quality Control Plan (RWQCB, 1994)

  The remediation system will lower concentrations of the COCs in the groundwater to drinking water quality standards or better, as shown on Table 1-1.

- "National Primary Drinking Water Standards," Title 40 CFR, Part 141

  Six of 11 COCs listed on Table 1-1 have ACLs set at the lower value of either the federal or state drinking water MCLs. These COCs are benzene, carbon tetrachloride, 1,1-DCA, 1,2-DCA, cis-1,2-DCE, and TCE.

Chloroform, 1,2-DCP, dichloromethane, PCE, and vinyl chloride ACLs are lower than either the federal or state MCLs based on risk calculation in the *Fort Ord Baseline Risk Assessment* prepared by Dames and Moore (1993).

The cumulative risk is within the acceptable risk range and is health protective.

- State Primary Drinking Water Standards, Title 22 CCR, Chapter 15

  Six of 11 COCs listed on Table 1-1 have ACLs set at the lower value of either the federal or state drinking water MCLs. These COCs are benzene, carbon tetrachloride, 1,1-DCA, 1,2-DCA, cis-1,2-DCE, and TCE.

  Chloroform, 1,2-DCP, dichloromethane, PCE, and vinyl chloride ACLs are lower than either the federal or state MCLs based on risk calculation in the *Fort Ord Baseline Risk Assessment* prepared by Dames and Moore (1993).

  The cumulative risk is within the acceptable risk range and is health protective.

- Land Disposal Restrictions, Title 22 CCR, Chapter 16

  The waste classification of materials generated will be determined prior to disposal. It is expected that the waste will be classified to be non-Resource Conservation Recovery Act hazardous waste. Should any waste generated on site be determined as hazardous waste, it will be manifested and disposed of appropriately.

The following discusses compliance with location-specific ARARs.

3.2 Location-Specific Applicable or Relevant and Appropriate Requirement Compliance

Environmentally-sensitive locations were identified in the biological survey. Endangered plant and animal species were identified. Construction and remedial activities avoided these locations and were protective of threatened and endangered species and habitats. A biologist was available to provide biological mitigation services during remediation activities on an as-needed basis. Location-specific ARARs and compliance measures are as follows:

- ESA, Title 16, United States Code, Section 1531, et seq., as promulgated by Title 50 CFR Part 402, §7

  Mitigation measures for the protection of threatened and endangered species and sensitive habitat will be in accordance with the *Installation-Wide Multispecies*

Habitat Management Plan for Former Fort Ord, California (Army, 1997) and the ESA.

- Fish and Game Code, Chapter 15, Article 15, §2090

  Mitigation measures for the protection of threatened and endangered species and sensitive habitat will be in accordance with the *Installation-Wide Multispecies Habitat Management Plan for Former Fort Ord, California* (Army, 1997) and the ESA.

The following discusses compliance with action-specific ARARs.

3.3 Action-Specific Applicable or Relevant and Appropriate Requirement Compliance

Groundwater treatment and discharge, excavation, and soil handling associated with activities such as construction of wells or conveyance piping were completed in accordance with the following regulations and standards

- MBUAPCD, Regulations II and X, and National Primary and Secondary Air Quality Standards, Title 40 CFR Part 150

  During groundwater treatment, excavation, soil handling, and construction, appropriate measures, such as emissions abatement and dust suppression, were implemented to meet air abatement requirements.

  The design addresses fugitive air emissions of inlet COCs that can become a source of toxic air contamination. No air abatement is required.

- "Standards Applicable to Generators of Hazardous Waste," Title 22 CCR, Chapter 12

  These standards are applicable if hazardous waste is generated. Should spent carbon or any other waste generated on site be determined as hazardous waste, it will be manifested for disposal or treatment.

- State Water Resources Control Board, Resolution No. 88-63

  The water will be treated to remove COCs to below ACLs.

- State Water Resources Control Board, Resolution No. 92-49

The USACE completed an economic and technical feasibility analysis pursuant to Resolution No. 92-49 and determined that OU2 cleanup to the MCLs is reasonable and satisfies cleanup requirements.

- State Water Resources Control Board, Resolution No. 68-16

  The COC discharge limits for OU2 treated water are below the ACL for eight COCs (benzene, chloroform, 1,1-DCA, cis-1,2-DCE, 1,2-DCP, dichloromethane, PCE, and TCE) and equal to the ACL for three COCs (carbon tetrachloride, 1,2-Dichloroethane, and vinyl chloride). These discharge levels will maintain the existing groundwater quality.

- Federal Safe Drinking Water Act, Title 40 CFR, Part 144, and California Toxic Injection Well Act, California Health and Safety Code §25159.24

  Injection of treated groundwater into the source aquifer as part of a remedial action is exempt from these standards. The treated groundwater to be injected in the aquifer will meet all drinking water standards (Table 1-1).

APPENDIX B

Vendor Submittals (Index Only)

Note: This Appendix contains the vendor submittal index only.

The complete vendor submittal appendix is maintained at the GWTP and in the USACE and IT offices.

Appendix B - Vendor Submittal Index
OU2 Expansion Groundwater Remedy Construction Project
Former Fort Ord, California

Section	Equipment	Vendor	Manufacturer/Supplier	Submittal	Subject	Remarks
1.0	Anchor Bolts (at Well Vaults and Building Piping & Equipment)	Clement Support Services	Powers Fasteners, Inc.	SD-01	MSDS Power-Fast Epoxy Injection Gel	
			Powers Fasteners, Inc.	SD-06	Product Description	
			Powers Fasteners, Inc.	SD-06	Material Properties	
			Powers Fasteners, Inc.	SD-06	Dispensing Guidelines	
			Powers Fasteners, Inc.	SD-06	Installation Guidelines	
2.0	Asphalt Paving Repair (at Road Crossings & GWTP Driveways)	Monterey Peninsula Engineering	Graniterock	SD-05	1/2 inch Asphaltic Concrete Mix Design	
3.0	Bag Filter and Bags	Filter Specialists, Inc.	Filter Specialists, Inc.	SD-01	Bag Filter Housing Data Sheet	
			Filter Specialists, Inc.	SD-02	Bag Filter Catalogue Cut	
			Filter Specialists, Inc.	SD-02	Reorder Bag Filter Information	
			Filter Specialists, Inc.	SD-06	Installation Instructions	With O&M
			Filter Specialists, Inc.	SD-19	O&M Manual	
4.0	Banding, S/S	Fastenal	Band-It	SD-01	Metals Data Sheet	316 Stainless Steel
5.0	Biological Survey (for Extraction Wells & Pipeline Route)	Harding Lawson Associates	Harding Lawson Associates	SD-09	OU2 Pipeline Expansion Report	12/15/99 - With 11x17 color
			Harding Lawson Associates	SD-09	Follow-up OU2 Pipeline Expansion	07/05/00
6.0	Cartridge Filter	Filter Specialists, Inc.	Filter Specialists, Inc.	SD-01	Multi-Cartridge Housing Data Sheet	
			Filter Specialists, Inc.	SD-02	Multi-Cartridge Filter Catalogue Cut	
			Filter Specialists, Inc.	SD-02	Reorder Cartridge Filter Information	
			Filter Specialists, Inc.	SD-06	Installation Instructions	With O&M
			Filter Specialists, Inc.	SD-19	O&M Manual	
7.0	Chemical Removal and Chemical Tank Decomtamination	Philip Industrial Services	Allwaste / Philip	SD-18	4,000 gallons 25% sodium hydroxide	01/15/00
			Allwaste / Philip	SD-18	5 poly drums 98% sulfuric acid	01/22/00
			Allwaste / Philip	SD-18	3 poly drums 50% hydrogen peroxide	01/22/00
			Allwaste / Philip	SD-18	12 poly drums 50% hydrogen peroxide	01/29/00
8.0	Concrete, Cast-in-Place	IT Corporation	Larsen Products Corp	SD-02	Weld-Crete Bonding Agent	With e-mail approval
			IT	SD-04	Truck Pad Profile & Section Drawings	Stamped
			Graniterock	SD-05	3,000 psi Concrete Design Mixes	Three Mixes
			Graniterock	SD-05	4,000 psi Concrete Design Mixes	Three Mixes
			D&M Consulting Engineers, Inc.	SD-10	N Housekeeping Pad Strength Results	Exception with IT eval
			D&M Consulting Engineers, Inc.	SD-12	Wye Vault Floor Slump Results	Exception with IT eval
	Concrete Epoxy Paint					See Paint, Epoxy
9.0	Concrete Pull Boxes, Traffic Rated	Christy Concrete Products, Inc.	Christy Concrete Products, Inc.	SD-04	B1017 Box H/20 Loading	With extension
			Christy Concrete Products, Inc.	SD-04	B1730 Box H/20 Loading	With extension
			Christy Concrete Products, Inc.	SD-04	B24" x 36" Box H/20 Loading	With extension
10.0	Concrete Pull Box Lids	Valley Fabrication	Valley Fabrication	SD-01	Procurement Requisition	Holes Drilled by Field
	Concrete Reinforcement (Rebar)			SD-04	Rebar Location	See Cast Concrete As-builts
11.0	Concrete Repair (Cast-in-Place Surfaces) Surfaces)	White Cap	Burke	SD-01	MSDS BurkEpoxy Mortar - A 0.3 CF	43210
			Burke	SD-01	MSDS BurkEpoxy Mortar - B	4322
			Burke	SD-01	MSDS BurkEpoxy Mortar - C	4323
			Burke	SD-01	Multi-Purpose Grout Product Info	03600
			Burke	SD-01	MSDS Multi-Purpose Grout	7030
			Lyons Manufacturing, Inc.	SD-01	Patchcrete Product Information	4/99
			Lyons Manufacturing, Inc.	SD-01	MSDS Patchcrete #1000	02/15/92
12.0	Concrete Replacement (Curbs, Gutters & Sidewalks)	Monterey Peninsula Engineering	Graniterock	SD-05	3/8 inch Concrete Pump Mix Design	
			Graniterock	SD-05	3/4 inch Concrete Mix Design	
	Concrete Vaults & Lids: A-Aquifer Extraction Well		Santa Rosa Cast Products	SD-04	6'x6' Extraction Well Vault, 14,000 lbs	3 Req'd, 01/24/00

Appendix B - Vendor Submittal Index
OU2 Expansion Groundwater Remedy Construction Project
Former Fort Ord, California

Section	Equipment	Vendor	Manufacturer/Supplier	Submittal	Subject	Remarks
	A-Aquifer Extraction Well		Nystrom Building Products	SD-04	6'x6' Vault Hatches	01/23/00
			Santa Rosa Cast Products	SD-04	6'x9' Extraction Well Vault, 22,000 lbs	4 Req'd, Rev 03/15/00
	180-ft Aquifer Extraction Well		Nystrom Building Products	SD-04	6'x9' Vault Hatches	01/23/00
			Santa Rosa Cast Products	SD-04	Extraction Well Vault Field Pour Collar	03/28/00
			Santa Rosa Cast Products	SD-04	Cover to Vault Wall Detail	Dwg X, 03/15/00
	High & Low Point / Leak Detect		Santa Rosa Cast Products	SD-04	2'x2' HP, LP, Leak Detection Vaults	41 Req'd, Rev 02/10/00
			Nystrom Building Products	SD-04	2'x2' Vault Hatches	01/23/00
			Santa Rosa Cast Products	SD-04	4'x4' Infiltration Gallery Vault	2 Req'd, Rev 03/16/00
	Infiltration Gallery		Nystrom Building Products	SD-04	INF Vault Hatches	03/16/00
13.0		Santa Rosa Cast Products	Xypex Chemical Corp	SD-02	Concrete Waterproofing Specs	Pgs 3, 4, 5, 8
			MA Industries	SD-02	Polypropylene Step Information	PS-1-PF
	Infiltration Valve		Santa Rosa Cast Products	SD-04	4'x8' Valve Vault, 16,500 lbs	2 Req'd, 01/24/00
			Nystrom Building Products	SD-04	4'x8' Vault Hatches	01/23/00
	Isolation Valve		Santa Rosa Cast Products	SD-04	4' Diam Manway Vault Assembly	3 Req'd, Sketch
			Henry Company	SD-02	Ram-Nek Flexible Plastic Gaskets	For 2-Section Vaults
			Nystrom Building Products	SD-05	BGA-H20 Features & Specifications	24"x24" Hatches
			Nystrom Building Products	SD-05	FGA-H20 Features & Specifications	All Other Hatches
	General Information		Nystrom Building Products	SD-06	Installation Instructions for Hatches	
			Nystrom Building Products	SD-13	Aluminum Lid Warranty	03/16/00
			Nystrom Building Products	SD-13	5 Year Performance Standard	03/16/00
			Santa Rosa Cast Products	SD-13	Certificate of Compliance	SF-27
14.0	Concrete Vault Bolts, Tamper Proof (at Christy Boxes)	Pentagon Aerospace Group, Inc.	Pentagon Aerospace Group, Inc.	SD-02	No information	
	Concrete Vault Lids:		Nystrom Building Products	SD-01	Performance Data	
			Nystrom Building Products	SD-04	Wye Vault Layout	
15.0	Wye Vault	Nystrom Building Products	Nystrom Building Products	SD-04	Wye Vault Opening Detail	
			Nystrom Building Products	SD-04	Wye Vault Beam Support Detail	
	Original OU2 EW & IW Vaults		Nystrom Building Products	SD-04	OU2 4'x5' Opening Detail	
16.0	Conduit, Buried	Consolidated Electrical Supply	PWPipe	SD-01	Specifications & Data	Conduit & Fittings
17.0	Control Valve (Proposed Future Wye Vault Addition)	Bermad	Bermad	*SD-01*	*Description / Operation Control 710-01*	*Electric Remote Control*
			Bermad	*SD-02*	*710 Electrical Remote Control Valve*	
18.0	Drilling Site Clearance	Subdynamic Locating Services	Subdynamics	SD-04	Diagrams Where Utilities Located	2 Locations
			Subdynamics	SD-12	Field Report / Findings	7 Extraction & 2 Infiltration
19.0	Electrical & Instrumentation Cable	Consolidated Electrical Supply	Futronix Systems	SD-05	16 AWG Twisted Pair Control Cable	FX1602SVNTC
			General Cable	SD-05	Other Control, Feeder, Leak Detection & Power Cables, Type THHN	Pg 15
			Central Wholesale Elect Distrib	SD-02	Transmittal Letter	05/10/00
			Gaylord Mfg Co	SD-02	Type 4X 2-door Floor Standing Encl	"A" -- N4XFLDDS
			PG&E	SD-02	Pad for Pad-Mounted Transformer	"B" 064309 pg 3/5, Rev 4
				SD-02	Dry-Type Distribution Transformer	"C" -- pg 9
			Circle AW	SD-02	Test Block Bypass MTBPMS15	"D" -- pg 60
			Circle AW	SD-02	Test Block Bypass MTBP Series	"E" -- pg 38
			PG&E	SD-02	Concrete Pad for 3-Phase Transformer	"F" -- 045292 pg 5/5, Rev 3
			Siemens Electrical Products	SD-02	Special Safety Switches / Non-metal	"G1" Speedfax 2000 pg 19
			Siemens Electrical Products	SD-02	Special Safety Switches / Non-metal	"G1" Speedfax 2000 pg 19
20.0	Electrical Subcontract (EW PLCs and Transfc	Superior Electric	Siemens Energy & Automation	SD-02	480/277 Volt Panel A	"H"
			Siemens Energy & Automation	SD-02	480/277 Volt Panel B	"I"
			Siemens Energy & Automation	SD-02	240/120 Volt Panel C	"K"
			Acme Transformer	SD-04	EW PLC Electric Connection Diagrams	B-111703-C

Section	Equipment	Vendor	Manufacturer/Supplier	Submittal	Subject	Remarks
			Acme Transformer	SD-06	EW PLC Transformer Instructions	See Transformer O&M
			National Electrical Mfg Assn	SD-06	EW PLC Panelboard Instructions	See Panelboard O&M
			Acme Transformer	SD-19	Installation and O&M of Dry Type Transformers, at EW PLC	Instruction Sheet A1 Part A-701953-A
			National Electrical Mfg Assn	SD-19	EW PLC Panelboard Instructions for Installation, Operation, Maintenance	NEMA Pub PB-1.1-1996
	Epoxy Paint; for Concrete					See Paint, Epoxy
21.0	Eyewash Station	IT	PM Engineer Aug 2000	SD-05	Changes to Emergency Shower & Eyewash Stds, ANSI Z358.1-1998	Pgs 26 & 27
22.0	Fencing (at EW PLC Panels)	Peninsula Fence Company	PDS Fence Products	SD-02	Privacy Decorative Slatting	02830 / ABP, # 5044
			American Tube Company, Inc.	SD-05	Specifications for TUF-40 Tubing	Rev. 5/90
			Master Fexce Fittings, Inc.	SD-05	Material Fencing Std Specs G-82	Form: 1034
23.0	Fire Alarm System (Original at GWTP Building)	Fire-Lite Alarms, Inc.	Fire-Lite Alarms, Inc.	SD-04	DIM-485 Product Installation Dwg	#50380 Rev A
			Fire-Lite Alarms, Inc.	SD-06	Programming Instructions	With O&M Manual
			Fire-Lite Alarms, Inc.	SD-13	Limited Warranty	
			Fire-Lite Alarms, Inc.	SD-19	Program, Install, Maintenance and Operations Manual	#51003 Rev A1
24.0	Flowmeter	Santa Fe Industrial Products	ABB Water Meters, Inc.	SD-02	Catalog Cuts, 1-3" & 4-8" sizes	
			ABB Water Meters, Inc.	SD-02	Catalog Cut Electronic Register (ER)	
			ABB Water Meters, Inc.	SD-06	ER Programming	See User Manual
			ABB Water Meters, Inc.	SD-19	ER User Manual	
25.0	Gaskets, Viton	Santa Fe Industrial Products	Teadit	SD-01	100 V Viton Data / Physical Properties	
		IT	IT	SD-06	Specification Information	7/7/00 e-mail
		Down Time	Pacific Mechanical Supply	SD-13	Cert of Conformance / Compliance	
26.0	Geotextile	FML Linings, Inc.	Amoco Fabrics and Fibers Co.	SD-01	Minimum Average Property Values	
			Amoco Fabrics and Fibers Co.	SD-13	QC Certificate	
27.0	Granular Activated Carbon (GAC), Expansion Units	US Filter/Westates	US Filter/Westates	SD-01	System Specifications	
			US Filter/Westates	SD-01	Carbon Specification	
			US Filter/Westates	SD-01	MSDS Activated Carbon	
			Carboline Co.	SD-01	MSDS Carboline 893, Parts A & B	For Exterior Field Repair
			Carboline Co.	SD-01	MSDS Carbothane 134 HG, Part A	For Exterior Field Repair
			Plasite Protective Coatings, Inc.	SD-01	MSDS Plasite 4110, Parts A, B & C	Interior Coating
			Air King	SD-02	Universal Couplings	
			Apco	SD-02	Combination Air Valves	
			Apollo	SD-02	Ball Valves	
			Ashcroft	SD-02	Pressure Gages Type 1008	
			Ashcroft	SD-02	Pressure Gages Type 1009	
			Dixon/Andrews	SD-02	Couplers	
			Fluid Controls	SD-02	Ball Valves	
			Orange Research, Inc	SD-02	Differential Pressure Gage	
			Ryan Herco	SD-02	PVC Pipe & Fittings	
			Spears	SD-02	Butterfly Valves	
			Three M	SD-02	Scotchkote 206N Epoxy Coating	
			Zook	SD-02	Graphite Rupture Disks	
			US Filter/Westates	SD-04	Flow Diagram GAC Adsorber System	8-1/2 x 11
			US Filter/Westates	SD-04	HP-1020S-6 General Assembly, Rev B	11x17 & E size
			US Filter/Westates	SD-04	Vessel Anchor Detail	8-1/2 x 11, Stamped
			US Filter/Westates	SD-05	LF-1020 Pressure Drop w/ 8x30 Carbon	

Section	Equipment	Vendor	Manufacturer/Supplier	Submittal	Subject	Remarks
			William A Teipe & Assoc, Inc	SD-05	Vessel Calculations	
			Carboline Co.	SD-06	Carbothane 134 HG	Federal Blue
			Carboline Co.	SD-06	Carboline 893	
			A & L Sandblasting and Painting	SD-08	Statement of coating completion	
			US Filter/Schmidt	SD-13	Vessel Hydrostatic Test	2 units
			US Filter/Westates	SD-13	Buy American Act Certification	
			US Filter/Westates	SD-13	Warranty Statement	1 year parts, 90 days labor
			US Filter/Westates	SD-19	O&M Manual	
28.0	Granular Activated Carbon (GAC), Refurbished Calgon Units	US Filter/Westates	Plasite Protective Coatings, Inc.	SD-01	Plasguard 4110 Product Data	Formerly Plasite 4110
			Carboline Co.	SD-01	MSDS Carboline 893, Parts A & B	Exterior Primer
			Carboline Co.	SD-01	MSDS Carbothane 134 HG, Part A	ExteriorTop Coat Federal Blue
			Plasite Protective Coatings, Inc.	SD-01	MSDS Plasite 4110, Parts A, B & C	For Interior Recoating
			IT	SD-04	Modified Leg Cross Brace Detail	9/11/00 (8-1/2 x 11)
			IT	SD-05	Seismic Calcs for Supports	5 + 1 page, Stamped
			IT	SD-05	Anchor Bolt Drilling Calculation	2/23/01
			Carboline Co.	SD-06	Product Data Sheet	Carbothane 134 HG
			Plasite Protective Coatings, Inc.	SD-06	Technical Bulletin	Plasite 4110
			Plasite Protective Coatings, Inc.	SD-06	Plasite Specifications	PA-3
29.0	Grating, Trench and Sump	McNichols Company	IT	SD-01	Description	
			McNichols Company	SD-02	Safe-T-Span 1" x 1-1/2" for Trenches	STSI-6010-MISOFR
			McNichols Company	SD-02	Safe-T-Span 2" x 1" for Sumps	STST-5020-MISOFR
30.0	Grating Clips	Mercury Metals	IT	SD-01	Description	
			IT	SD-05	Design Calculations	
31.0	Grout, Non-Shrink	White Cap	Sika Corporation	SD-01	MSDS Sikaflex - 1a	09/09/99
			Sika Corporation	SD-05/06	Technical Information & Instructions	3/00
32.0	Handrails	Tubular Specialties Mfg	Tubular Specialties Mfg	SD-04	Ramp Barrier	Sheet 1 of 5
				SD-04	Pipe Chase Railing	Sheet 2 of 5
				SD-04	NE North Containment Railing	Sheet 3 of 5
				SD-04	NW North Containment Railing	Sheet 4 of 5
				SD-04	NE & SE East Containment Railing	Sheet 5 of 5
33.0	Ladders, (INF and Original OU2 EW / IW Vaults)	Ladder Man	Ladder Man	SD-02	Series 399 Fixed FRP	
			Strongwell	SD-04	Ladder Drawings #1/2/3-B-18277	11 x 17
34.0	Leak Detection System	Superior Electric	Bestor	SD-04	Leak Detection Zones	See Survey, OU2 Expan
			Universal Sensors & Devices	SD-06	Special Installation Sensor Package	LALS-2 Dual Liquid
			Universal Sensors & Devices	SD-19	Operation Instruction Manual	LA-08 System
35.0	Level Probe, EW-OU2-06-180	Water Development Corp	Warrick Controls	SD-02	Catalog Cut	
			IT	SD-06	Installation Instructions	
36.0	Level Switches	Santa Fe Industrial Products	Gems	SD-02	Catalog Cut	
	Level Transducers					See Pressure Transducers
37.0	Paint, Epoxy (for Concrete)	White Cap	Burke	SD-01	BurkEpoxy Coating Technical Info	09880
			Burke	SD-01	MSDS BurkEpoxy Primer A	41611
			Burke	SD-01	MSDS BurkEpoxy Primer B	61621
			Burke	SD-01	MSDS BurkEpoxy Coating Grey - A	46115
			Burke	SD-01	MSDS BurkEpoxy Coating Color - B	46125
38.0	Permeable Fill	Wm. J. Clark Trucking	Wm. J. Clark Trucking	SD-10	Materials Report (Permeable Fill)	Arroyo Seco Pit
			CSR Poly Pipe	SD-01	HDPE Pipe Data	Figure 1, Pgs A1-A2
			New Plastic Fittings, Inc	SD-01	Guide Book for Thermoplastic Fittings	Selected HDPE Pages

Section	Equipment	Vendor	Manufacturer/Supplier	Submittal	Subject	Remarks
39.0	Pipe and Fittings, HDPE (Extraction Pipeline)	Santa Fe Industrial Products	V & A Process, Inc.	SD-01	MSDS for HDPE Welding Rods	
			CSR Poly Pipe	SD-04	HDPE Pipe Dimensions	Figure 2, Pgs A3-A5
			New Plastic Fittings, Inc	SD-04	Dual Wall Fitting Dwgs & Dimensions	
			Santa Fe Industrial Products	SD-08	Dual Wall Fitting Pressure Ratings	04/12/00
			Santa Fe Industrial Products	SD-08	Single Wall HDPE Fusion	04/12/00
40.0	Pipe and Fittings Test, HDPE	Hauser Laboratory Services	Hauser Laboratory Services	SD-10	Results of laboratory test 6"x10" tee	02/15/00
41.0	Pipe and Fittings, PVC (at GWTP and Well Vaults)	Various	IPS	SD-01	MSDS for Pipe Primer & Cement	
			Chemtrol	SD-02	PVC Pipe & Fitting to 8 inches	No 10 or 12 inch data
42.0	Pipe Supports	Clement Support Services	Clement Support Services	SD-01	Catalog Front Page	
			IT	SD-01	Index of Supplied Components	
			Tolco, Inc	SD-02	Tolstrut Catalog (Selected Pages)	T-2001
	Piping Valves	Various	Various	SD-02	Catalog Cuts Not Provided	All by Field Material Req
43.0	Pressure Gauges	Santa Fe Industrial Products		SD-02	Catalog Cut	Extraction Wells
44.0	Pressure Switches	Santa Fe Industrial Products	Ashcroft	SD-06/19	Installation & Maintenance	Model B400, EW Vault Manual & Auto
45.0	Pressure Transducer, Industrial Influent Manifold (NOT INSTALLED)	Santa Fe Industrial Products	KPSI	SD-02	Series 27, 28 & 30 Industrial	
			KPSI	SD-04	Certification Drawings	See Submersible, below
			KPSI	SD-05	Series 27, 28 & 30 Specifications	
			KPSI	SD-06	Installation Instructions	See Submersible, below
			KPSI	SD-10	Calibration Reports	
			KPSI	SD-19	O&M Manual	See Submersible, below
46.0	Pressure Transducer, Submersible: EW-OU2-03/04/05-180, EW-OU2-14/15/16-A, MW-OU2-78-180	Santa Fe Industrial Products	KPSI	SD-02	Series 300S Small Bore Submersible	
			KPSI	SD-04	Certification Drawings	Dwg #600229, 2 pages
			KPSI	SD-05	Series 300S Specifications	
			KPSI	SD-06	Installation Instructions	With O&M
			KPSI	SD-10	Calibration Reports	7 items
			KPSI	SD-19	O&M Manual	
47.0	Programmable Logic Controller (PLC), (at new EWs):					
	Level Switch	Superior Electric	Gems Sensors	SD-06	Instructions Single-Station	Bulletin 72947
	Motor Saver		SymCon, Inc	SD-06	Installation Instructions	Model 355
	Motor Starter		Allen-Bradley	SD-04	Magnetic Motor Controller Dwg	40050-502-1-H
			Allen-Bradley	SD-06	Heater Element Selection Table	40050-503-02(D)
			Allen-Bradley	SD-06	Heater Element Selection Table	40052-284-02(B)
	PLC Module		PLC Direct	SD-06	DL205 Installation & Safety	April 1994
	Panel		Gaylord Mfg. Co.	SD-02	Cut Sheet	
			Gaylord Mfg. Co.	SD-06	Instructions	
	Power Supply, 24 v DC		Facts Engineering Inc.	SD-02	FA-24PS, 24 volt DC	October 1999
	Power Transformer, 120 v AC		Acme Transformer	SD-04	Electrical Conneciton Diagrams	B-111703-C
			Acme Transformer	SD-19	Installation, Operation & Maintenance	A-701953-A
48.0	PLC Modifications (GWTP)	Superior Electric	PLC Direct	SD-01	DL 405 Safety Considerations	7942030-1 Jan 1994
			Square D	SD-06	Instruction Class 9001 Contact Block	30072-100-02B
			Square D	SD-06	Instruction Oil-Tight Push Button Op	30072-100-01F
			Superior Electric	SD-08	Guarantee for PLC Modifications	02/14/00
			Automation Direct	SD-13	Standard License	
			Direct Soft	SD-19	DDE Server User Manual	DA-DDE-M, cover Manual at GWTP
			Direct Soft 32	SD-19	Program Software User Manual	Cover, manual at GWTP

Section	Equipment	Vendor	Manufacturer/Supplier	Submittal	Subject	Remarks
			Direct Soft 32	SD-19	Program Software Quick-Start Manual	Cover, manual at GWTP
			Direct Logic	SD-19	DL 405 User Manual	Cover, manual at GWTP
			Direct Logic	SD-19	DL405 Analog I/O Modules	D4-ANLG-M, cover Manual at GWTP
			Square D	SD-19	Instruction Bulletin Selector Switches	65013-002-18M, 10/97
49.0	PLC Software, (New EW PLCs)	PLC Direct	PLC Direct	SD-06	Direct Soft Quick Start Programming Manual	QS-DSOFT-M Cover and index only
			US Motors	SD-01	Name Plate Information	
			Ingersoll-Dresser Pumps	SD-02	Type GRP	
			Ingersoll-Dresser Pumps	SD-02	GRP A Closer Look	
			Ingersoll-Dresser Pumps	SD-02	GRP Details	
			Ingersoll-Dresser Pumps	SD-04	General Arrangement Drawing	0572-W0000, Rev. A
			Ingersoll-Dresser Pumps	SD-05	Construction Data Sheet	
50.0	Pump, Centrifugal, Backwash: P - 385	Santa Fe Industrial Products	Ingersoll-Dresser Pumps	SD-05	Hydraulic Data Sheet	
			Ingersoll-Dresser Pumps	SD-05	Typical GRP Noise Data	
			Ingersoll-Dresser Pumps	SD-06	Pump Installation Instructions	With O&M manual
			US Motors	SD-06	Motor Installation Instructions	With O&M manual
			Santa Fe Industrial Products	SD-07	Schedule	
			Ingersoll-Dresser Pumps	SD-19	Spare Parts List	
			Ingersoll-Dresser Pumps	SD-19	Pump O&M Manual	
			US Motors	SD-19	Motor O&M Manual	
			US Motors	SD-01	Name Plate Information	
			Ingersoll-Dresser Pumps	SD-02	Type D-800 Centrifugal Pumps	
			Ingersoll-Dresser Pumps	SD-04	General Arrangement Drawing	2012-4 Page 11
			CJI Process Systems	SD-04	Base Plate, Motor Mount & Coupling Guard	
51.0	Pump, Centrifugal, Injection: P - 510, P - 520	Santa Fe Industrial Products	Ingersoll-Dresser Pumps	SD-05	Hydraulic Data Sheet	4x3x8F D-800
			Ingersoll-Dresser Pumps	SD-05	Typical D-814 Noise Data	2012-5 Page 11
			Santa Fe Industrial Products	SD-05	Motor Noise Data	Fax 5/2/00
			Santa Fe Industrial Products	SD-07	Schedule	
			Flowserve Division of I-D Pumps	SD-19	D814 Pump Installation and O&M	CPK 1123A-050100_EN
			US Motors	SD-19	Motor O&M Manual	
			Franklin Electric	SD-01	Replacement Motor Data	EW-OU2-05 & -06-180
			Grundfos	SD-02	Pump Curves & Technical Data	25S30-15 & 150S200-10
			Reed's Manufacturing & Pump Co.	SD-04	Pump Well Sleeve Drawing	8-1/2 x 11
			Grundfos	SD-06	Installation Instructions, Pumps	With O&M manual
52.0	Pump, Submersible: EW-OU2-03/04/05/06-180, EW-OU2-14/15/16-A	Pac Machine Co., Inc.	Franklin Electric	SD-06	Installation Instructions, Motors	With O&M manual
			Franklin Electric	SD-06	Replacement Motor Instructions	
			Pac Machine Co., Inc.	SD-08	Pump Guarantee	
			Grundfos	SD-19	O&M Manual, S/S Pumps	
			Franklin Electric	SD-19	O&M Manual, Submersible Motors	
			Goulds Pumps	SD-02	Series 1DW 1-1/2" Dewatering Pump	
			SJE Rhombus	SD-02	Super Single Pump Switch	
53.0	Pump, Sump (East, North, GWTP): P-375, P-395, P-495	Santa Fe Industrial Products	Goulds Pumps	SD-06	Installation Instructions	With O&M
			SJE Rhombus	SD-06	Installation Instructions	
			Santa Fe Industrial Products	SD-07	Schedule	
			SJE Rhombus	SD-13	Pump Switch Warranty	
			Lowara, A Goulds Pump Company	SD-19	O&M Manual	Installation and Usage
	Rupture Disk					See GAC, New

Appendix B - Vendor Submittal Index
OU2 Expansion Groundwater Remedy Construction Project
Former Fort Ord, California

Section	Equipment	Vendor	Manufacturer/Supplier	Submittal	Subject	Remarks
54.0	Static Mixer, Influent	SolarChem	(No SolarChem Info or Drawings)	SD-05	Static Mixer Modification	ID: Static Mixer M-186 in Original OU2 UV System
	Sump Design					See As-built Drawings
55.0	Sump Liners	B.H. Tank Works	IT	SD-04	Stainless Steel Sump	Sketch
	Supervisory Control and Data Aquisition (SCADA):					
	Ethernet Program		Automation Direct	SD-06	Information Ethernet Communications	H24-ECOM-M, Index Only
			PolyPhaser Corporation	SD-06 &13	IS-B50 Series Impulse Suppressor Safety, Installation & Warranty	Eng-F-016 12/97
			Radiall / Larson	SD-01 & 06	YA Series Yagi Direction Antenna Specifications and Installation	12/97 5192.5000
			Maxrad, Inc.	SD-06 & 13	MBS-800 Base Station Adapter Kit Installation and Warranty	MIS-MBSADAPTER
	Antenna		US Consumer Product Safety Com.	SD-06	Antenna Safety Information	1982-522-053/3905
			Data-Linc Group	SD-01 & 04	Yagi Directional Antenna Specifications and Dimensions	Model A-YB, 6 dB
			Data-Linc Group	SD-01 & 04	Omni Directional Antenna Specifications and Dimensions	Model A-OB, 3 dB
56.0		Various	Data-Linc Group	SD-04	Antenna / Coaxial Cable System	Antenna Coax Diagram
			Data-Linc Group	SD-06	Ethernet Radio Modem User's Guide	SRM6200E
			Data-Linc Group	SD-06	Radio Modem User's Manual	PN 161-10002-001
			Solar Depot, Inc.	SD-02	Catalog Component Information	Selected Pages
	Photovoltaic (PV / Solar Power)		Solar Depot, Inc.	SD-04	240 Wp Photovoltaic Module	TC240.cdr
			Unirac, Inc.	SD-06	Assembly Instructions	Series U-PT Panel Rack
			Morningstar Corporation	SD-19	Prostar PV Operator's Manual	R1 - April 1996
			Dell	SD-05	Specifications	02/06/01
			Dell	SD-06	WorkStation Information Guide	P/N 8638P Rev A01 Cover Only
			Dell	SD-06	Setup & Quick Reference Guide	P/N 31GKV Rev A00 Cover
			Dell	SD-06	WorkStation Installation Guide	P/N 4760R Rev A03 Cover Only
	Operator Interface		Dell	SD-06	Sony CD Documentation Update	P/N 6454R Rev A01
			Dell	SD-06	FastTrak100 User's Manual	P/N 077JJ Rev A00 Cover & Index
			PLC Direct	SD-06	Lookout Direct Learning Guide	PC-LKD-DEV Index Only
			Intel	SD-13	Three Year Processor Warranty	P/N 00706 A00
	Survey, As-Built		Bestor	SD-04	As-Built Drawings	All Drawings D Size
	Site 2 (West of Rt 1)		Bestor	SD-04	Site 2 West of Highway One	1 Dwg in Dwg Appendix
	Site 12 (East of Rt 1)		Bestor	SD-04	Site 12 East of Highway One	2 Dwgs in Dwg Appendix
57.0	OU2 Origianal	Bestor	Bestor	SD-04	Original OU2 Groundwater Remedy	3 Dwgs in Dwg Appendix
	OU2 Expansion		Bestor	SD-04	OU2 Groundwater System Expansion	9 Dwgs in Dwg Appendix
	New EW / PZ Coordinates		Bestor	SD-12	Extraction Wells & Piezometers	Coord & Elevations
	Site 2 INF PZ Coordinates		Bestor	SD-12	Site 2 INF Piezometers	Coord & Elevations

Section	Equipment	Vendor	Manufacturer/Supplier	Submittal	Subject	Remarks
58.0	Tank, Backwash, New	B.H. Tank Works	Tnemec	SD-01	Rota-Pox Plus Series 140	Interior Coating
			Tnemec	SD-01	Tnemec-Zinc 90-97	Exterior Primer
			Tnemec	SD-01	Endura-Shield Series 74	Exterior Top Coat
			B.H. Tank Works	SD-04	11,400 Gallon Backwash Tank	Dwg 10004, Rev A/B
			John Schock, P.E.	SD-05	Vessel Calculations	Stamped
59.0	Tank, Backwash, Refurbished (Former UV H2O2 Tank)	B.H. Tank Works	B.H. Tank Works	SD-04	Refurbish SS Backwash Tank	Dwg 16998, 12/21/00
			Solar-Chem	SD-05	Original Vessel Calculations	Tank #3, H2O2 50%
			IT	SD-05	Refurbished Anchor Bolt Analysis	02/22/01
60.0	Tank, Effluent, Replacement	B.H. Tank Works	B.H. Tank Works	SD-04	10,000 Gallon Effluent Tank	Dwg 10102, Rev B
				SD-05	Vessel Calculations	Stamped
				SD-12	Tank Inspection Report	03/29/01
	Thrust Block					See As-built Drawings
61.0	Transformer, at Imjin/Abrams Wells	Pacific Gas and Electricity (PG&E)	Pacific Gas and Electricity (PG&E)	SD-01	General Information	
			Pacific Gas and Electricity (PG&E)	SD-02	Concrete Pad for 3-Phase Transformer	UG-1 045292 Rev.3
			Pacific Gas and Electricity (PG&E)	SD-02	Underground Conduits	UG-1 062288 Rev.1, p 4&6
			Pacific Gas and Electricity (PG&E)	SD-04	Installation Map	PM: 30124192 (16x20)
			Pacific Gas and Electricity (PG&E)	SD-04	Standard Trench Drawing	8-1/2 x 11
			Pacific Gas and Electricity (PG&E)	SD-05	Service Planning Sheet	Rev. 7/11/00
			Pacific Gas and Electricity (PG&E)	SD-08	Signed Application Documents	Transmitted 5/8/00
			USACE	SD-09	Meter Installation Inspection	07/11/00
			Pacific Gas and Electricity (PG&E)	SD-13	Agreement to Perform Work	05/09/00
62.0	Transformer, at Landfill Wells	Pacific Gas and Electricity (PG&E)	Pacific Gas and Electricity (PG&E)	SD-01	General Information	
			Pacific Gas and Electricity (PG&E)	SD-02	Concrete Pad for 3-Phase Transformer	UG-1 045292 Rev.3
			Pacific Gas and Electricity (PG&E)	SD-02	Underground Conduits	UG-1 062288 Rev.1, p 4&6
			Pacific Gas and Electricity (PG&E)	SD-04	Installation Map	PM: 30120004 (16x20)
			Pacific Gas and Electricity (PG&E)	SD-04	Standard Trench Drawing	8-1/2 x 11
			Pacific Gas and Electricity (PG&E)	SD-05	Service Planning Sheet	Rev. 7/11/00
			Pacific Gas and Electricity (PG&E)	SD-08	Signed Application Documents	Transmitted 5/8/00
			Pacific Gas and Electricity (PG&E)	SD-08	Notification of Completion	06/29/00
			USACE	SD-09	Meter Installation Inspection	07/11/00
			Pacific Gas and Electricity (PG&E)	SD-13	Agreement to Perform Work	05/09/00
63.0	Transformer, at University Wells	Pacific Gas and Electricity (PG&E)	Pacific Gas and Electricity (PG&E)	SD-01	General Information	
			Pacific Gas and Electricity (PG&E)	SD-02	Concrete Pad for 3-Phase Transformer	UG-1 064309 Rev.4
			Pacific Gas and Electricity (PG&E)	SD-02	Underground Conduits	UG-1 062288 Rev.1, p 4&6
			Pacific Gas and Electricity (PG&E)	SD-04	Installation Map	PM: 30124189 (11x17)
			Pacific Gas and Electricity (PG&E)	SD-05	Service Planning Sheet	Rev. 7/11/00
			Pacific Gas and Electricity (PG&E)	SD-08	Signed Application Documents	Transmitted 4/21/00
			Pacific Gas and Electricity (PG&E)	SD-08	Notification of Completion	06/29/00
			USACE	SD-09	Meter Installation Inspection	07/11/00
64.0	Valves, at Infiltration Galleries	Santa Fe Industrial Products	Bermad	SD-02	Bi-Level Float Control Valve 750-66	general info
			Bermad	SD-06	750-60 Float Valve - Modulating	Specs, data, control diag, 10/99
			Bermad	SD-06	Model 66 Float Control - Non-modulating	Data, installation 10/99
			Bermad	SD-08	Buy American Act Compliance	06/09/00
65.0	Valves, at Isolation Vaults	Santa Fe Industrial Products	Asahi / America	SD-02	Non-Rising System Gate Valve, PVC	Rev. V-97/B
			Santa Fe & Asahi / America	SD-06	Bolt Torque Information	06/22/00
		USACE	USACE	SD-08	Waiver to Purchase Non Buy American	SPK-2-11-006, 05/06/00

Appendix B - Vendor Submittal Index
OU2 Expansion Groundwater Remedy Construction Project
Former Fort Ord, California

Section	Equipment	Vendor	Manufacturer/Supplier	Submittal	Subject	Remarks
66.0	Variable Frequency Drives	Avatar Engineering	Danfoss Electronic Drives	SD-01	Design Features, Specs, Op Interface	
			Danfoss Electronic Drives	SD-02	VLT 5000 Aqua Drive	
			Danfoss Electronic Drives	SD-04	Schematic Diagram Std Drive	Dwg 19-7542-00, Rev A
			Danfoss Electronic Drives	SD-04	Customer Connection Diagram	Dwg 19-7544-11, Rev D
			Danfoss Electronic Drives	SD-04	Installation Drawing, NEMA 1	Dwg 12-6786-00, Rev B
			Danfoss Electronic Drives	SD-04	NEMA 1 (IP20) Dimensions	VLT 5011 (460 VAC)
			Danfoss Electronic Drives	SD--05	Performance Information	Input, output, noise, derating, efficiency
			Danfoss Electronic Drives	SD-06	Instructions	Introduction, installation, programming, other
			Danfoss Electronic Drives	SD-06	Service	
			Danfoss Electronic Drives	SD-13	Standard Warranty	
67.0	Video Logging:	Welenco				No Section
	EW-OU2-06-180-(Initial)		Welenco	SD-12	Videos 03/23/00 and 04/12/00 (2) Prior to compl as MW-OU2-78-180	One copy ea QC / Proj File
	EW-OU2-16-A		Welenco	SD-12	Video 02/02/01	One copy ea QC / Proj File
68.0	Waterstops	Santa Fe Industrial Products				See
	Well Caps		CJI Process Systems	SD-04	Well Cap Drawings	2 Dwgs & 2 Bills of Mat'l
			CJI Process Systems	SD-04	Drawing Approvals, as Noted	Letter 4/28/00
			Santa Fe Industrial Products	SD-08	Buy American Statement	Letter 6/12/00
69.0	Well Drilling	Water Development, Inc.	Water Development, Inc.	SD-06	Drilling Instructions / Bore Hole Calcs	
			Water Development, Inc.	SD-07	Original Sehedule	
			Water Development, Inc.	SD-08	Proposed Personnel	
			Colorado Silica Sand, Inc.	SD-10	Testing Sieve Guide	
			Colorado Silica Sand, Inc.	SD-10	8 - 16 Sand	
			Colorado Silica Sand, Inc.	SD-10	Oglebay Norton Ind Well-Pack Sand	
			Colorado Silica Sand, Inc.	SD-10	Chemical Analysis Results	
			Colorado Silica Sand, Inc.	SD-10	Physical Characteristics	
			Lone Star Industries, Inc.	SD-10	Typical Grading Parameters	
			SRI	SD-10	SRI Supreme #3 Sand	
			SRI	SD-10	SRI Supreme 3/4-inch Sand	
			IT	SD-12	Well Logs	See Well Installation and Abandonment Report
70.0	Well Pump Installation	THF Drilling	IT	SD-12	Well Test Report	
				SD-18	Well Pump Installation Records	7 EW

APPENDIX C

Groundwater Treatment Plant Operator Reports and Checklists

Tables

C-1 Weekly Inspection Checklist
C-2 Monthly Preventive Maintenance Checklist
C-3 Daily Progress Report
C-4 Field Activity Daily Log
C-5 Periodic Preventive Maintenance Checklist
C-6 Periodic Maintenance Checklist
C-7 Granular Activated Carbon Valve Positioning

Table C-1. Weekly Inspection Checklist
Operations and Maintenance Manual, Site OU2 Groundwater Remedy
Former Fort Ord, California

		Saturday	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday
Operational conditions (Scroll through the PLC to verify operational setpoints maintained)								
Valve positions (Ensure all valves are in their correct position, including automatic valves)								
No damage or water leaks (Verify that there is no water leaks or damage to process equipment or lines)								
Air compressor (Verify air compressor is operating within range, check oil level, check auto drain)								
Flow readings (Verify that flow readings are appropriate and all required pumps are running)								
Air vent/vacuum valve (Inspect air/vent vacuum valve along injection pipeline for leaks)								
Air compressor filters (Drain moisture from filters, replace filter if necessary)								
PG&E Voltage (Verify incoming voltage is appropriate)								
Security check (Verify no vandalism or theft to plant, extraction & injection systems)								
OPERATING PARAMATERS	Western instantaneous flowrate	gpm	gpm	gpm	gpm	gpm	gpm	
	Eastern instantaneous flowrate		gpm	gpm	gpm	gpm		
	Landfill instantaneous flowrate		gpm	gpm	gpm	gpm	gpm	gpmU
	Bunker Hill instantaneous flowrate		gpm	gpm	gpm	gpm	gpm	gpm
	CSUMB instantaneous flowrate		gpm	gpm	gpm	gpm	gpm	gpmSh
	Shopette instantaneous flowrate	gpm	gpm	gpm	gpm	gpm	gpm	gpm
	EW-04U instantaneous flowrate	gpm	gpm	gpm	gpm	gpm	gpm	gpm
	EW-04M instantaneous flowrate	gpm	gpm	gpm	gpm	gpm	gpm	gpm
	Influent instantaneous flowrate	gpm	gpm	gpm	gpm	gpm	gpm	gpm
	Effluent instantaneous flowrate	gpm	gpm	gpm	gpm	gpm	gpm	gpm
	Variable frequency drive mA	mA	mA	mA	mA	mA	mA	mA
	Injection pump A (run time hours)	hrs	hrs	hrs	hrs	hrs	hrs	
	Injection pump B (run time hours)	hrs	hrs	hrs	hrs	hrs	hrs	
	Influent pressure (PI 5408)	psi	psi	psi	psi	psi	psi	psi
	Influent pressure (PI 5412)	psi	psi	psi	psi	psi	psi	psi
	Carbon vessel pressure (PI 5031)	psi	psi	psi	psi	psi	psi	psi
	Carbon vessel pressure (PI 5034)	psi	psi	psi	psi	psi	psi	psi
	Carbon vessel pressure (PI 5051)	psi	psi	psi	psi	psi	psi	psi
	Carbon vessel pressure (PI 5054)	psi	psi	psi	psi	psi	psi	psi
	Effluent pressure (PI 5493)	psi	psi	psi	psi	psi	psi	psi
	Pre-sulfuric addition pH (AE 5422)	pH	pH	pH	pH	pH	pH	pH
	Post-sulfuric addition pH (AE 5432)	pH	pH	pH	pH	pH	pH	pH
	acid usage (spm;, % stroke)							
	Sulfuric tank level	gal	gal	gal	gal	gal	gal	gal
	INF-01 water level	ft	ft	ft	ft	ft	ft	ft
	INF-02 water level	ft	ft	ft	ft	ft	ft	ft
	INF-03 water level	ft	ft	ft	ft	ft	ft	ft
	IW-01 water level	ft	ft	ft	ft	ft	ft	ft
	IW-02 water level	ft	ft	ft	ft	ft	ft	ft

Checked By:_____ Approved By:_____

AHTNA
Government Services Corporation

Table C-2. **OU2 GWTP MONTHLY MAINTENANCE CHECKLIST**

ITEM DESCRIPTION (refer to O&M manual for instruction)	Jan.	Feb.	Mar.	Apr.	May	June	July	Aug.	Sept.	Oct.	Nov.	Dec.
Air compressors (change oil, inspect valve assemblies and tighten all fasteners).												
Bag filters/strainers (clean strainer, check filters and replace if necessary).												
Injection pumps (verify correct operation).												
Remove weeds and trash from yard.												
Sweep out plant.												
Oil locks.												
Valve positions (check all valves are in their correct position).												
Air vent valves (open the air vent valves on the carbon vessels).												
Air compressor (verify air compressor(s) is/are on and operating within range).												
No damage and/or water leaks (verify that there is/are no water leaks).												
Flow readings (verify that flow readings are appropriate and pumps are running).												
Air vent/vacuum valves (inspect air/vent vacuum valves along injection pipeline).												
Particulate and Oil/Aerosol filter (drain moisture from filters).												
Air actuated valves (verify valves are operational and within pressure range).												
Fire Extinguishers (check pressurized to normal limits, readily accessible, clear path of travel).												
Emergency Eye Wash / Safety Showers (tested and functioning properly).												
Smoke/CO/ Fire Detectors (respond to manual testing if applicable).												
Personal Protection Equipment (i.e. hand, eye, head, respiratory; readily available; clean and properly stored).												
First Aid Equipment (in good repair; adequately stocked; American Red Cross First Aid book available).												
Fire Escape / Exits (clear and unobstructed; no flammables / combustibles stored near exits).												

AHTNA
Government Services Corporation

Electrical (circuits labeled at their panel; access to panels clear and unobstructed).												
Hazardous Substances stored properly and MSDS's readily available.												
Housekeeping (walking/workspaces clean and orderly)												

Checklist completed by: _____ Date: _____

Table C-3. Fort Ord Groundwater Treatment Plant
Operations and Maintenance Daily Progress Report
Sites OU2 and 2/12

Contract\Task Order No.: DACA05-01-D-0003\0026	Date/Time:
Treatment Plant Operator:	Weather/Temperature:

OU2 Flow Rates (gpm)

OU2 XS:_____ Totalizer:_____

SW Inj Rate:_____ Totalizer:_____

NW Inj Rate:_____ Totalizer:_____

Total **: approx _____ gallons per minute**

Site 2/12 Flow Rates (gpm)

Effluent Rate:_____ Totalizer:_____

Influent Rate:_____ Totalizer:_____

Total Inj Rate:_____ Totalizer:_____

Total: **approx _____ gallons per minute**

Operating OU2 Wells: check box if operating

Western Network/GPM:
- ☐ 01A _____
- ☐ 02A _____
- ☐ 03A _____
- ☐ 04A _____
- ☐ 05A _____
- ☐ 06A _____
- ☐ 01-180 ____

Eastern Network/GPM:
- ☐ 07A _____
- ☐ 08A _____
- ☐ 09A _____
- ☐ 10A _____
- ☐ 11A _____
- ☐ 12A _____
- ☐ 13A _____
- ☐ 02-180 _____

Shoppette/GPM:
- ☐ 05-180 _____
- ☐ 06-180 _____
- ☐ 16A _____

CSUMB/GPM:
- ☐ 14A _____
- ☐ 15A _____

Landfill/GPM:
- ☐ 03-180 _____
- ☐ 04-180 _____

Operating 2/12 Wells: check box if operating

Well/GPM:
- ☐ X1 _____
- ☐ X2 _____
- ☐ X3 _____

- ☐ 03U _____
- ☐ 03M _____
- ☐ 04U _____
- ☐ 04M _____

Additional Comments for OU2 or 2/12 GWTS wells:

OU2 GAC:

Eastern Berm: ΔA_____(psi) ΔB_____(psi) **Total P**_____(psi) **Total Q**_____(gpm)

Northern Berm: ΔC_____(psi) ΔD_____(psi) **Total P**_____(psi) **Total Q**_____(gpm)

please note: the circled GAC represents the lead GAC P=Pressure, Q=Flow

Please use the space below to list ***any*** O&M Issues, Subcontractor Work Performed, or ***any*** other observations and/or updates in regards to today's daily operations:

* Operator signature_____date: * Reviewed by:_____date:

2/20/07 GWTS Daily Report Weather: Cloudy 60°

Arrival on site at about 0745.
The first thing I did was check SCADA, take daily readings, and do the plant walk through at both sites.

OU2 East Inf. - 276 gpm, North Inf - 361, OU2 xs - 398, SW Inj - 0, NW Inj - 271, Eff Tank - 10.2'

2/12 Inf - 217 gpm, Eff Tank - 6.4', Eff - 278 gpm
Air Stripper - 16", 19.4 MA

I then printed some schematics for pumps & motors, & posted them on the wall. I emailed Mark Fisler about needing a key for 12-03-180m. I then went to the UPS store to ship the Hydro turbines to Harris Hydro via UPS Ground. I also ran out to Salinas Windustrial to exchange some clamps that were the wrong size for the air Stripper Site tube. I then came back and vacumed out well vault 6A to suck all of the water out. I secured the site and departed at 1600.

2/20/07

Table C-5. Preventive Maintenance Checklist
Operations and Maintenance Manual, Operable Unit 2 Groundwater Remedy
Former Fort Ord, California

Appendix C Tab	Item	Identification	Security	Safety	Frequency*	Date	Initials	Comments
1	Anchor Bolts							
	All Anchored Equipment	Various		X	Semi-annual**			
3	Bag Filter	F-348						
	Lifting Threads			X	Semi-annual			
N/A	Building							
	Doors/locks/windows		X	X	Semi-annual			
	Inside supports		X	X	Semi-annual			
	Outside shell		X	X	Semi-annual			
6	Cartridge Filter	F-350						
	Lifting Threads			X	Semi-annual			
8	Concrete, Cast-in-Place							
	Floors			X	Semi-annual			
	Housekeeping Pads			X	Semi-annual			
	Truck Pad			X	Semi-annual			
	Vault Sumps	7 EW Vaults		X	Semi-annual			
9 &10	Concrete Pull Boxes & Aluminum Lids							
	Christy 10x17	Tbl 2-2 (19)	X	X	Semi-annual			
	Christy 17x30	Tbl 2-2 (4)	X	X	Semi-annual			
	Christy 24x36	Tbl 2-2 (3)	X	X	Semi-annual			
13 & 15	Concrete Vaults & Lids							
	A-Aquifer EW	Table 2-2 (3)	X	X	Semi-annual			
	180-ft Aquifer EW	Table 2-2 (4)	X	X	Semi-annual			
	High Point, Low Point, Leak Detect 24x24	Table 2-2 (40+1)	X	X	Annual			
	INF Gallery	Table 2-2 (2)	X	X	Semi-annual			
	INF Valve	Table 2-2 (2)	X	X	Semi-annual			
	Isolation	Table 2-2 (3)	X	X	Annual			
	OU2 EW/IW Replacement	15 + 3	X	X	Semi-annual			
	Wye	Table 2-2 (1)	X	X	Semi-annual			
14	Tamper Proof (Pentagon) Vault Lid Bolts							
	Christy 10x17	Tbl 2-2 (19)	X		Annual			
	Christy 17x30	Tbl 2-2 (4)	X		Annual			
	Christy 24x36	Tbl 2-2 (3)	X		Annual			

Table C-5. Preventive Maintenance Checklist
Operations and Maintenance Manual, Operable Unit 2 Groundwater Remedy
Former Fort Ord, California

Appendix C Tab	Item	Identification	Security	Safety	Frequency*	Date	Initials	Comments
20 & 47	Electrical Panelboards							
	Abrams		X	X	Semi-annual			
	Abrams/Imjin		X	X	Semi-annual			
	Landfill		X	X	Semi-annual			
	Repeater		X	X	Semi-annual			
	University		X	X	Semi-annual			
	Wellhead (operating only)		X	X	Semi-annual			
21	Eyewash/Shower Station							
	Building Containment, Flush Supply Line			X	Quarterly			
	N & E Containment, Flush Supply Line			X	Quarterly			
	N & E Containment, Functional Checkout			X	Semi-annual			
22	Fencing							
	Abrams PLC		X	X	Semi-annual			
	Abrams/Imjin PLC		X	X	Semi-annual			
	Landfill PLC		X	X	Semi-annual			
	Repeater Station		X	X	Semi-annual			
	University PLC		X	X	Semi-annual			
	GWTP		X	X	Semi-annual			
23	Fire Alarm System GWTP							
	Functional Checkout		X	X	Semi-annual			
27	GAC, Northern Containment Area							
	Integrity Checkout			X	Semi-annual			
28	GAC, Eastern Containment Area							
	Integrity Checkout			X	Semi-annual			
29	Grating, Trench and Sump							
	Building			X	Semi-annual			
	East Containment			X	Semi-annual			
	North Containment			X	Semi-annual			
30	Grating Clips							
	East Containment			X	Semi-annual			
	North Containment			X	Semi-annual			

Table C-5. Preventive Maintenance Checklist
Operations and Maintenance Manual, Operable Unit 2 Groundwater Remedy
Former Fort Ord, California

Appendix C Tab	Item	Identification	Security	Safety	Frequency*	Date	Initials	Comments
32	Handrails & Chains							
	East Containment			X	Semi-annual			
	North Containment			X	Semi-annual			
33	Ladders							
	Expansion EW Vaults	7		X	Semi-annual			
	Expansion INF Vaults	2		X	Semi-annual			
	Expansion Valve Vaults	2		X	Semi-annual			
	Expansion Wye Vault	1		X	Semi-annual			
	Original EW Vaults	15		X	Semi-annual			
	Original IW Vaults	3		X	Semi-annual			
42	Pipe Supports							
	GWTP			X	Semi-annual			
	Vault			X	Semi-annual			
49	PLC Software							
	Abrams PLC		X		Semi-annual			
	Abrams/Imjin PLC		X		Semi-annual			
	Landfill PLC		X		Semi-annual			
	University PLC		X		Semi-annual			
	GWTP		X		Semi-annual			
50	Pump, Centifugal, Backwash							
	Electrical/Mechanical/Guard	P-385		X	Semi-annual			
51	Pump, Centifugal, Injection							
	Electrical/Mechanical/Guard/VFD	P-410		X	Semi-annual			
	Electrical/Mechanical/Guard/VFD	P-420		X	Semi-annual			
	Electrical/Mechanical/Guard/VFD	P-510		X	Semi-annual			
	Electrical/Mechanical/Guard/VFD	P-520		X	Semi-annual			
	Electrical/Mechanical/Guard/VFD	P-910		X	Semi-annual			
	Electrical/Mechanical/Guard/VFD	P-920		X	Semi-annual			
53	Pump, Sump							
	Eastern Electrical/Mechanical	P-375		X	Semi-annual			
	Northern Electrical/Mechanical	P-395		X	Semi-annual			
	Inside GWTP Electrical/Mechanical	P-495		X	Semi-annual			

Table C-5. Preventive Maintenance Checklist
Operations and Maintenance Manual, Operable Unit 2 Groundwater Remedy
Former Fort Ord, California

Appendix C Tab	Item	Identification	Security	Safety	Frequency*	Date	Initials	Comments
55	Sump Liner (Integrity)							
	Building			X	Semi-annual			
	East Containment			X	Semi-annual			
	North Containment			X	Semi-annual			

Notes:

* Any descrepancy should be noted for correction when found during normal operations

** Semi-annual checks ensure the timely inspection of all items.

Table C-6. Maintenance Checklist
Operations and Maintenance Manual, Operable Unit 2 Groundwater Remedy
Former Fort Ord, California

Appendix C Tab	Item	Identification	Task	Frequency Mo/Qtr/SA/Ann/Oth	Date	Initials	Comments
3	Bag Filter	F-348	Keep lifting threads clean and lubricated; replace when worn	Annual			
6	Cartridge Filter	F-350	Keep lifting threads clean and lubricated; replace when worn	Annual			
20 & 47	Electrical Panelboards	5 offsite PLC Panels and each wellhead electrical panel	Hot surface after 3 seconds; may indicate trouble	Periodic			
			Vacuum or wipe surfaces to remove dust accumulation	Semi-annual			
			Spray surfaces to dewater and to reduce corrosion potential	Semi-annual			
			Service of licensed electrician	After short circuit or other electrical damage			
24	Flowmeters						
	Landfill EW-OU2-03-180	FI-835	Monitor for low voltage battery warning; replace if necessary	During periodic confirmation reading			
	Landfill EW-OU2-04-180	FI-825					
	Abrams/Imjin EW-OU2-05-180	FI-845					
	Abrams/Imjin EW-OU2-06-180	FI-815					
	Abrams/Imjin EW-OU2-16-A	FI-735					
	University EW-OU2-14-A	FI-725					
	Unversity EW-OU2-15-A	FI-715					
	Eastern Calgon GAC Influent	FI-325					
	Northern USFilter GAC Influent	FI-679					
	Southwestern Injection	FI-541					
27	GAC, Northern Containment Area	TK-600C/D	Inspect for complete carbon discharge & vessel internals	Each carbon changeout			
28	GAC, Eastern Containment Area	TK-600A/B	Inspect for complete carbon discharge & vessel internals	Each carbon changeout			
34	Leak Detection System	Abrams PLC	Integrity check	Verify connection from each node during first year; annual checks thereafter			
		GWTP PLC					
		Imjin/Abrams PLC					
		Landfill PLC					
		University PLC					

Table C-6. Maintenance Checklist
Operations and Maintenance Manual, Operable Unit 2 Groundwater Remedy
Former Fort Ord, California

Appendix C Tab	Item	Identification	Task	Frequency Mo/Qtr/SA/Ann/Oth	Date	Initials	Comments
36	Level Switches, Vault						
	Landfill EW-OU2-03-180	LSH-834	Lift level switch and check electronic response	Semi-annual			
	Landfill EW-OU2-04-180	LSH-824					
	Abrams/Imjin EW-OU2-05-180	LSH-844					
	Abrams/Imjin EW-OU2-06-180	LSH-814					
	Abrams/Imjin EW-OU2-16-A	LSH-734					
	University EW-OU2-14-A	LSH-724					
	Unversity EW-OU2-15-A	LSH-714					
	Wye Vault	LSH-192					
44	Pressure Switches, Extraction Well						
	Landfill EW-OU2-03-180	PSH-733	Throttle valves to simulate high pressure in pipeline, compare with pressure setpoint	Semi-annual			
	Landfill EW-OU2-04-180	PSH-723					
	Abrams/Imjin EW-OU2-05-180	PSH-843					
	Abrams/Imjin EW-OU2-06-180	PSH-813					
	Abrams/Imjin EW-OU2-16-A	PSH-733					
	University EW-OU2-14-A	PSH-723					
	Unversity EW-OU2-15-A	PSH-713					
	Pressure Switches, Header						
	Landfill EW-OU2-04-180	PSH-822	Throttle valves to simulate high pressure in pipeline, compare with pressure setpoint	Semi-annual			
	Abrams/Imjin EW-OU2-06-180	PSH-812					
	University EW-OU2-15-A	PSH-712					
50	Pump, Centrifugal, Backwash						
	Pump	P-385	Grease bearings	4000 Run Hours or Every 3 Years			
	10 HP Motor	P-385	0.2 oz grease, ea 2 bearings	Every 3 Years			
51	Pump, Centrifugal, Injection						
	Pump	P-510 & P-520	Bearings sealed for life	NA			
	7.5 HP Motor	P-510	0.2 oz grease, ea 2 bearings	Every 3 Years			
	7.5 HP Motor	P-520					

Table C-6. Maintenance Checklist
Operations and Maintenance Manual, Operable Unit 2 Groundwater Remedy
Former Fort Ord, California

Appendix C Tab	Item	Identification	Task	Frequency Mo/Qtr/SA/Ann/Oth	Date	Initials	Comments
53	Pump, Sump						
	Eastern Containment Pump	P-375	Clean suction grate and impeller	As Needed			
	Northern Containment Pump	P-395					
	Inside GWTP Building Pump	P-495					
	Eastern Containment Level Switch	LC-375	Lift level switch and check electronic response	Semi-annual			
	Northern Containment Level Switch	LC-395					
	Inside GWTP Building Level Switch	LC-495					
64	Valves, at Infiltration Galleries						
	INF-OU2-01-180	LSH-539	With confined space permit only, lift level switch and check electronic response	Semi-annual			
	INF-OU2-01-180	LSH-555					

Appendix C-7. Granular Activated Carbon Valve Positioning
Operations and Maintenance Manual, Operable Unit 2 Groundwater Remedy
Former Fort Ord, California

Valve	Description	Series Flow		Parallel Flow	TK-600A Backwash, Lowflow and	TK-600A Backwash, Highflow and	Longterm Shutown Valve Position
		TK-600A lead	TK-600B lead				
V-601	Eastern GAC manifold valve	open	closed	open	closed	closed	closed
V-602	Eastern GAC manifold valve	closed	open	open	open	closed	closed
V-603	Eastern GAC manifold valve	closed	closed	closed	open	open	closed
V-604	Eastern GAC manifold valve	closed	closed	closed	closed	closed	closed
V-605	Eastern GAC manifold valve	closed	open	open	closed	closed	closed
V-606	Eastern GAC manifold valve	open	closed	open	closed	closed	closed
V-607	Eastern GAC manifold valve	closed	open	closed	closed	closed	closed
V-608	Eastern GAC manifold valve	open	closed	closed	closed	closed	closed
V-609	Eastern GAC manifold valve	open	closed	closed	open	open	closed
V-610	Eastern GAC manifold valve	closed	open	closed	open	closed	closed
V-611	Eastern GAC backwash influent	closed	closed	closed	closed	open	closed
V-612	Sample port valve	closed	closed	closed	closed	closed	closed
V-613	Sample port valve	closed	closed	closed	closed	closed	closed
V-614A	Eastern pressure differential valve	open	open	open	open	closed	open
V-614B	Eastern pressure differential valve	open	open	open	open	closed	open
V-615A	Eastern pressure differential valve	open	open	open	open	closed	open
V-615B	Eastern pressure differential valve	open	open	open	open	closed	open
V-616	Eastern GAC Rupture Disc	closed	closed	closed	closed	closed	closed
V-617	Eastern GAC Rupture Disc	closed	closed	closed	closed	closed	closed
V-618	Sample port valve to LLNL	closed	closed	closed	closed	closed	closed
V-619	Sample port valve to LLNL	closed	closed	closed	closed	closed	closed
V-626A	TK-600A air/water valve						closed
V-627A	TK-600A GAC unload valve						closed
V-626B	TK-600B air/water valve						closed
V-627B	TK-600B GAC unload valve						closed
V-633A	TK-600A Sample port valve						closed
V-633B	TK600B Sample port valve						closed
V-634A	TK-600A air/water valve						closed
V-635A	TK-600A GAC unload valve						closed
V-636A	TK-600A air/water valve						open
V-634B	TK-600B air/water valve						open
V-635B	TK-600B GAC unload valve						closed
V-636B	TK-600B air/water valve			closed during normal operation			closed
V-630C	Northern GAC sampling valve						closed
V-631C	Northern GAC sampling valve						closed
V-632C	Northern GAC sampling valve						closed
V-630D	Northern GAC sampling valve						closed
V-631D	Northern GAC sampling valve						closed
V-632D	Northern GAC sampling valve						closed
V-634	TK-600D air bleed valve						open
V-635	TK-600D air/water valve						closed
V-636	TK-600D air/water valve						closed
V-644	TK-600C air bleed valve						open
V-645	TK-600C air/water valve						closed
V-646	TK-600C air/water valve						closed
V-651	Northern GAC manifold valve	open	closed	open	closed	closed	closed
V-652	Northern GAC manifold valve	closed	open	open	open	closed	closed
V-653	Northern GAC manifold valve	closed	closed	closed	open	open	closed
V-654	Northern GAC manifold valve	closed	closed	closed	closed	closed	closed
V-655	Northern GAC manifold valve	closed	open	open	closed	closed	closed
V-656	Northern GAC manifold valve	open	closed	open	closed	closed	closed
V-657	Northern GAC manifold valve	closed	open	closed	closed	closed	closed
V-658	Northern GAC manifold valve	open	closed	closed	closed	closed	closed
V-659	Northern GAC manifold valve	open	closed	closed	open	open	closed
V-660	Northern GAC manifold valve	closed	open	closed	open	closed	closed
V-661	Northern GAC backwash influent	closed	closed	closed	closed	open	closed
V-662	Sample port valve	closed	closed	closed	closed	closed	closed
V-663	Sample port valve	closed	closed	closed	closed	closed	closed
V-664A	Northern pressure differential valve	open	open	open	open	closed	open
V-664B	Northern pressure differential valve	open	open	open	open	closed	open
V-665A	Northern pressure differential valve	open	open	open	open	closed	open
V-665B	Northern pressure differential valve	open	open	open	open	closed	open
V-666	Northern GAC Rupture Disc	closed	closed	closed	closed	closed	closed
V-667	Northern GAC Rupture Disc	closed	closed	closed	closed	closed	closed

Appendix C-7. Granular Activated Carbon Valve Positioning
Operations and Maintenance Manual, Operable Unit 2 Groundwater Remedy
Former Fort Ord, California

Valve	Description	Series Flow		Parallel Flow	TK-600A Backwash, Lowflow and	TK-600A Backwash, Highflow and	Longterm Shutown Valve Position
		TK-600A lead	TK-600B lead				
V-668	Sample port valve to LLNL	closed	closed	closed	closed	closed	closed
V-669	Sample port valve to LLNL	closed	closed	closed	closed	closed	closed
V-666C	TK-600C air/water valve						closed
V-667C	TK-600C GAC unload valve						closed
V-668C	TK-600C air/water valve						closed
V-666D	TK-600D air/water valve						closed
V-667D	TK-600D GAC unload valve			closed during normal operation			closed
V-668D	TK-600D air/water valve						closed
V-675C	TK-600C GAC unload valve						closed
V-676C	TK-600C air/water valve						closed
V-675D	TK-600D GAC unload valve						open
V-676D	TK-600D air/water valve						open

GAC granular activated carbon

APPENDIX D

Valve Positioning for Various Modes of Operation

Appendix D-Valve Positioning
Operations and Maintenance Manual, Operable Unit 2 Groundwater Remedy
Former Fort Ord, California

Valve	Description	Normal Flow	TK-340 Full	TK-380 Full	Temproary Shutdown Valve Position	Longterm Shutdown Valve Position
		Influent Manifold				
V-301	West influent 6-inch butterfly valve	open			open	closed
V-302	West manifold 2-inch valve to LLNL	closed			closed	closed
V-303	West manifold 6-inch check valve	open			closed	closed
V-304	West manifold 6-inch air actuated valve	open			closed	closed
V-319	Manifold 6" butterfly bypass valve	closed			closed	closed
V-307	West manifold 2-inch PI valve	open			open	open
V-308	West manifold 6-inch butterfly valve	open			open	closed
V-321	East influent 6-inch butterfly valve	open			open	closed
V-322	East manifold 2-inch valve to LLNL	closed			closed	closed
V-323	East manifold 6-inch check valve	open			closed	closed
V-324	East manifold 6-inch air actuated valve	open			closed	closed
V-327	East manifold 2-inch PI valve	open			open	open
V-328	East manifold 6-inch butterfly valve	open			open	closed
V-315	Manifold mixer sample port valve	closed			closed	open
		Sump to Backwash Tank				
V-378	East sump 2-inch check valve	open	closed	closed	closed	closed
V-376	East sump 2-inch isolation valve	open	open	open	open	closed
V-379	East sump 2-inch valve to TK-340	open	closed	open	closed	closed
V-374	East sump 2-inch valve to P-495	closed	open	open	open	open
V-496	Building sump 2-inch isolation valve	open	open	open	open	closed
V-497	Building sump 2-inch clean-out valve	closed	closed	closed	closed	open
V-498	Building sump 2-inch check valve	open	closed	closed	closed	closed
V-396	Northern sump 2-inch isolation valve	open	open	open	open	closed
V-397	Northern sump 2-inch clean-out valve	closed	closed	closed	closed	open
V-398	Northern sump 2-inch check valve	open	closed	closed	closed	closed
V-399	Northern sump 2-inch valve to TK-380	open	open	closed	closed	closed
		Backwash Tank to Manifold				
V-339	TK-340 backwash influent 6-inch valve	open	closed		open	closed
V-341	TK-340 backwash effluent 4-inch valve	open	open		open	closed
V-342	East backwash 2-inch clean-out valve	closed	closed		closed	open
V-347	East 2-inch check valve	open	open		closed	closed
V-346	East air bleed valve	closed	closed		closed	open
V-344	East 2-inch valve to TK-380	closed	closed		closed	closed
V-349	Cartridge 2-inch influent valve	open	open		open	closed
V-352	Cartridge 2-inch influent drain valve	closed	closed		closed	open
V-353	Cartridge 2-inch effluent drain valve	closed	closed		closed	open
V-351	Cartridge 2-inch effluent valve	open	open		open	closed
V-352	Cartridge 2-inch influent valve	open	open		open	closed
V-354	Cartridge 2-inch influent bypass valve	closed	closed		closed	closed
V-356	Cartridge 2-inch bypass drain valve	closed	closed		closed	closed
V-355	Cartridge 2-inch effluent bypass valve	closed	closed		closed	closed
V-359	Backwash filter 2-inch valve to manifold	open	open		closed	closed
V-389	TK-380 backwash influent 6-inch valve	open		closed	closed	closed
V-381	TK-380 backwash effluent 3-inch valve	open		open	open	closed
V-382	North backwash 2-inch clean-out valve	closed		closed	closed	open
V-387	North 2-inch check valve	open		open	closed	closed
V-385	North air bleed valve	closed		closed	closed	open
V-388	North 2-inch valve to TK-340	open		closed	closed	closed

Valve	Description	Normal Flow	TK-340 Full	TK-380 Full	Temproary Shutdown Valve Position	Longterm Shutdown Valve Position
		Effluent Manifold				
V-689	TK-690 influent 10-inch valve	open			closed	closed
V-692	TK-690 effluent 12-inch valve	open			closed	closed
V-694	TK-690 effluent drain line	closed			closed	closed
V-417	8-inch butterfly isolation valve	open			open	closed
V-923	P-920 4-inch gate valve	open			open	closed
V-924	P-920 2-inch drain valve	closed			closed	open
V-927	P-920 4-inch check valve	open			open	closed
V-928	P-920 2-inch drain valve	closed			closed	open
V-929	P-920 4-inch gate valve	open			open	closed
V-912A	P-920 pressure gauge valve	open			open	closed
V-912B	P-920 pressure switch valve	open			open	closed
V-913	P-910 4-inch gate valve	open			open	closed
V-914	P-910 2-inch drain valve	closed			closed	open
V-917	P-910 4-inch check valve	open			open	closed
V-918	P-910 2-inch drain valve	closed			closed	open
V-919	P-910 4-inch gate valve	open			open	closed
V-922	P-910 pressure gauge valve	open			open	closed
V-923	P-910 pressure switch valve	open			open	closed
V-530	P-910/920 isolation valve	open			open	closed
V-532	Northwestern air bleed valve	open			open	open
V-533	Northwestern isolation valve	open			closed	closed
V-413	P-410 4-inch gate valve	open			open	closed
V-414	P-410 2-inch drain valve	closed			closed	open
V-412A	P-410 pressure gauge valve	open			open	closed
V-412B	P-410 pressure switch valve	open			open	closed
V-417	P-410 4-inch check valve	open			open	closed
V-418	P-410 2-inch drain valve	closed			closed	open
V-419	P-410 4-inch butterfly valve	open			open	closed
V-423	P-420 4-inch gate valve	open			open	closed
V-424	P-420 2-inch drain valve	closed			closed	open
V-422A	P-420 pressure gauge valve	open			open	closed
V-422B	P-420 pressure switch valve	open			open	closed
V-427	P-420 4-inch check valve	open			open	closed
V-428	P-420 2-inch drain valve	closed			closed	open
V-429	P-420 4-inch butterfly valve	open			open	closed
V-440	Sites 2 and 12 to LLNL valve	closed			closed	closed
V-430	P-410/420 isolation valve	open			open	closed
V-434	Sites 2 and 12 air bleed valve	open			open	open
V-433	Sites 2 and 12 isolation valve	open			open	closed
V-432	Eastern injection isolation valve	closed			closed	closed
V-513	P-510 4-inch gate valve	open			open	closed
V-514	P-510 2-inch drain valve	closed			closed	open
V-512A	P-510 pressure gauge valve	open			open	closed
V-512B	P-510 pressure switch valve	open			open	closed
V-517	P-510 4-inch check valve	open			open	closed
V-518	P-510 2-inch drain valve	closed			closed	open
V-519	P-510 4-inch butterfly valve	open			open	closed
V-523	P-520 4-inch gate valve	open			open	closed
V-524	P-520 2-inch drain valve	closed			closed	open
V-522A	P-520 pressure gauge valve	open			open	closed
V-522B	P-520 pressure switch valve	open			open	closed
V-527	P-520 4-inch check valve	open			open	closed
V-528	P-520 2-inch drain valve	closed			closed	open
V-529	P-520 4-inch butterfly valve	open			open	closed
V-540	P-510/520 isolation valve	open			open	closed
V-546	Southwestern air bleed valve	open			open	open
V-542	Southwestern isolation valve	open			open	closed

APPENDIX E

Spare Parts Inventory List

Appendix E. Spare Parts Inventory List Operations and Maintenance Manual, Sites OU2 Groundwater Remedy Former Fort Ord, California

Description	Manufacturer/Part Number	Quantity
Vega Level Displays		3
Pressure Probe Transmitters	Ametek	4
Pressure Transmitters	Foxborrough	4
Pressure shut off switches		4
sch. 80 PVC parts (1"-4")		6
Wafer mount 2" check valve		2
Wafer mount 3" check valve		2
Wafer mount 4" check valve		3
ABB flowmeters (disassembled)		5
ABB displays (disassembled)		12
Chemical transfer pump	LMI	3
2" brass globe valves		3
Vacuum release valves		4
Leak detection panel (disassembled)		5
Spare 1/2 inch -1 inch seal tight flew conduit pieces		na
Grease gun for injection and backwash pump		1
50 pound bag of dense soda ash	OCI Chemical Corporation	2
Teflon coupling (compression x compression)		1
Teflon fittings for acid line (1/2 " MPT x 1/2" compression)		4
Teflon tubing (1/2" O.D.)		10 feet
Teflon fitting (1/2" FPT x 1/2" compression)		1
PVDF threaded coupling (1/2")		1
Assorted strut clamps		na
Box of gaskets		1
Strut (assorted lengths)		45 feet
8" seismic flanged fitting		1
8" 80 PVC butterfly valve		2
8" 80 PVC 90's		2
6" 80 PVC 90's		2
6" 80 PVC 45's		2
4" 80 PVC gate valves		2
6" 80 PVC couplings		4
6" 80 PVC butterfly valves		7
Tools		
Crescent wrench	10-inch	1
Diagonal cutters		1
Needle nose pliers		1
Pipe wrench	18-inch	1
Pliers (small)		1
Small portable tool box		1
Socket, wrench and drill bit set		1
Filters		
Air intake filter for compressed air		2
Cartridge filters for filter vessel		2 changeouts
Compressor oil filter		2

Checked By:_____ Approved By:_____

APPENDIX F

List of Manufacturers' Warranties

List of Manufacturers' Warranties
Operable Unit 2 Groundwater Remedy

Equipment	Vendor	Manufacturer	Warranty
Air Compressor	D&D Compressor	Palatek	5-year warranty
Building, Overall	Jedco Consulting Engineers	Butler Manufacturing Company	1-year warranty
Cartridge Filter	Rosedale Products, Inc.	Rosedale Products, Inc.	1-year warranty
Control Valve Actuator	Fluid Control	George Fischer	2-year warranty
Control Valve Positioner	Fluid Control	George Fischer	2-year warranty
Floor Coating	Jedco Consulting Engineers	Chemproof Polymer	1-year warranty
Granular Activated Carbon (GAC)	Northwestern Carbon	Various	1-year warranty
Leak Detection System	Universal Sensor Devices	Universal Sensor Devices	1-year warranty
Motor Control Center (MCC)	Bell Electric Supply	Cutler-Hammer	1-year warranty
pH Probes	Harrington Industrial Plastics, Inc.	Flowline Inc.	1-year warranty
Pressure Transducer	KPSI	KPSI	1-year warranty
Programmable Logic Controller (PLC)	R&G Control Design	Various	1-year warranty
Pump, Centrifugal	Santa Fe Industrial Products	Ingersoll-Dresser Pumps,	18-month warranty

Equipment	Vendor	Manufacturer	Warranty
		US Motor	
Pump, Metering	Santa Fe Industrial Products	Pulsatron	18-month warranty
Pump, Submersible	PACE Supply	Grundfos	18-month warranty
Pump, Sump	Santa Fe Industrial Products	Lowara, a Goulds Pumps Company	18-month warranty
Variable Frequency Drives	Electrical Equipment Company	AC Tech	18-month warranty
Ultrasonic Level Transmitter	Ryan Herco	Flowline	1-year warranty

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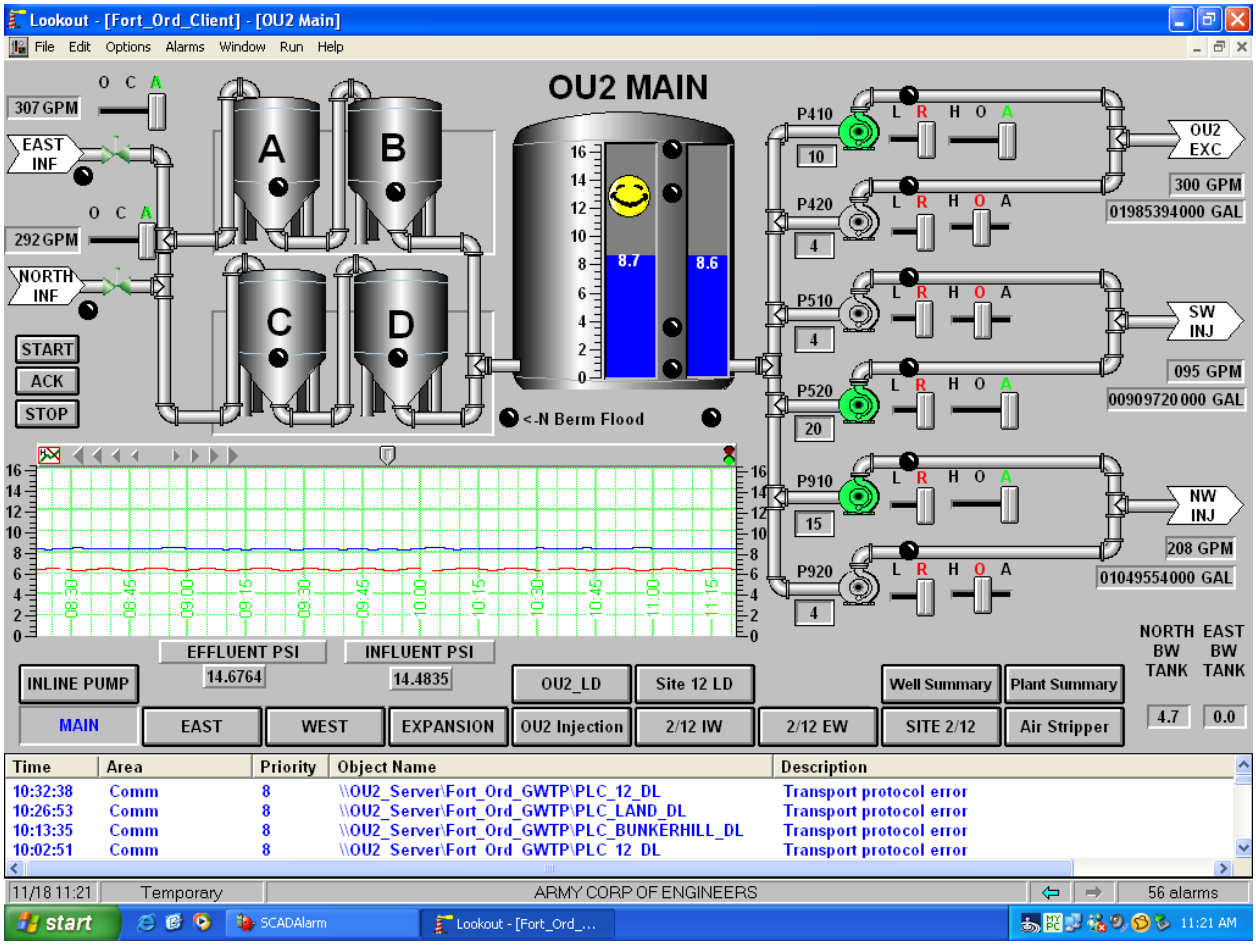
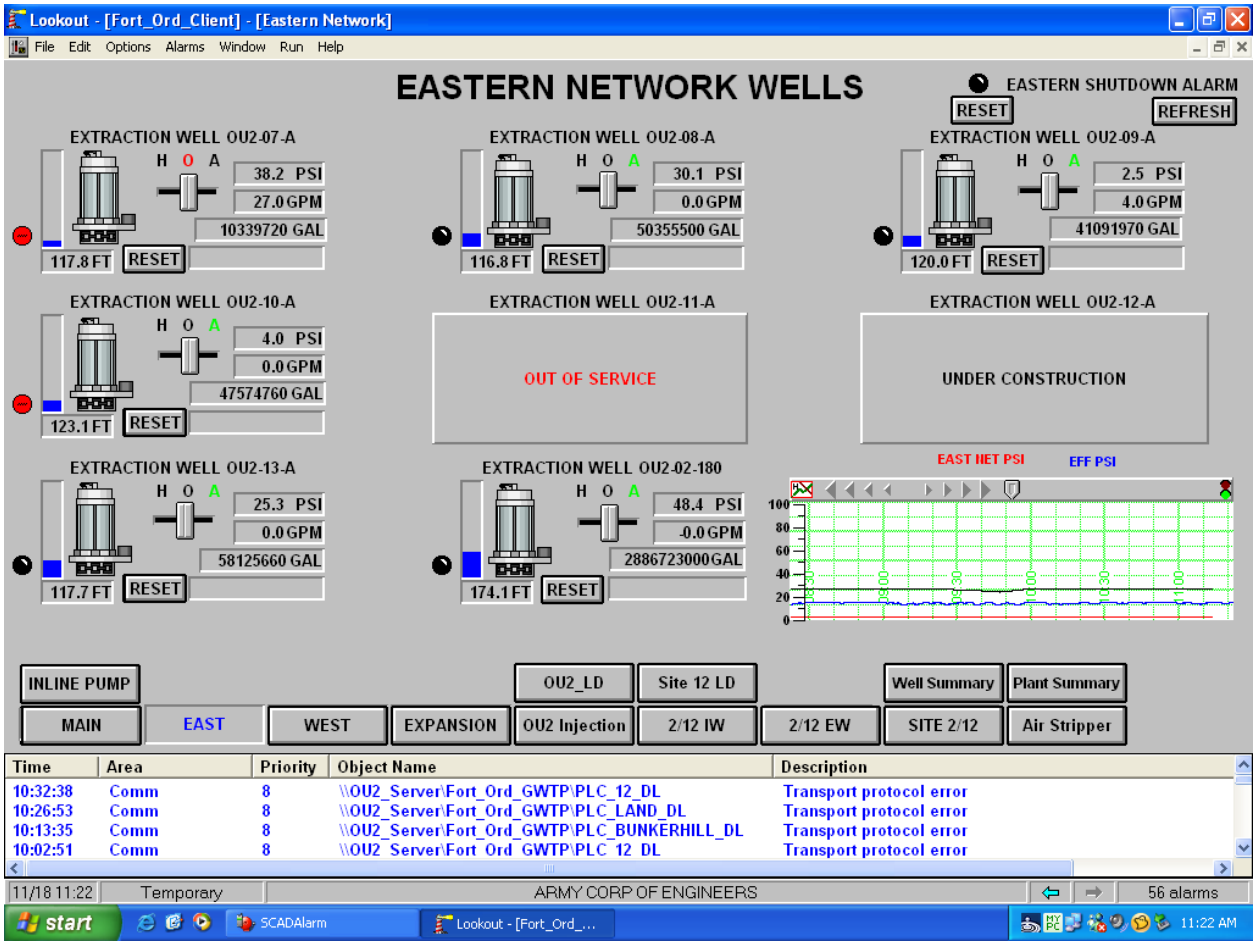
APPROVED BY

APPENDIX G

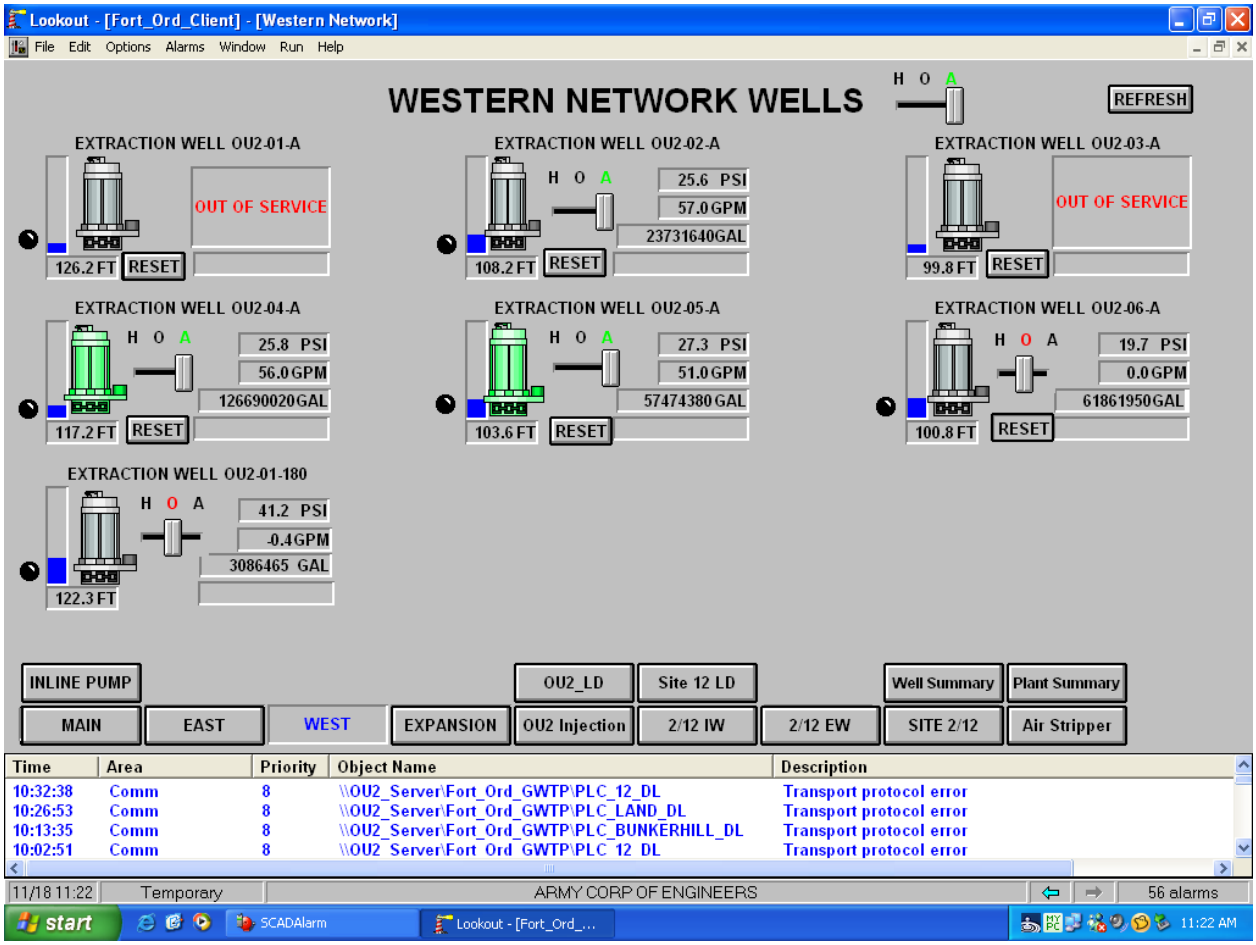
Supervisory Control and Data Acquisition (SCADA)



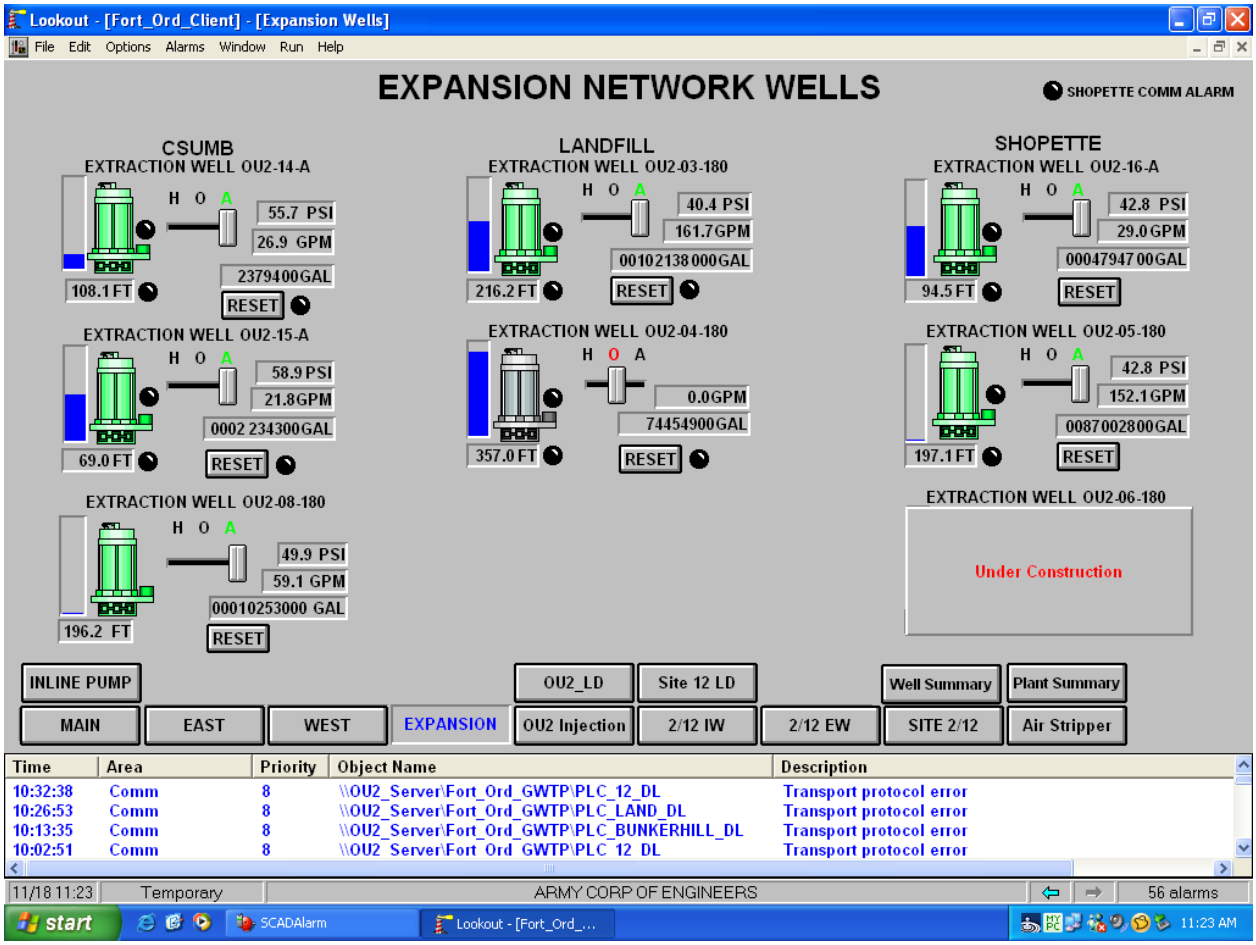
This is the main screen for the for the Fort Ord GWTP plant. This screen provides control for OU2 site and trends tank levels for both OU2 and Site 12. Hand-Off-Auto switches are used to for control of effluent pumps and Open-Closed-Auto switches are used for control of influent valves. The level of the treated water tank is displayed numerically as well as graphically. Level alarms are triggered and displayed if the tanks reach a high or low level. High pressure alarms are displayed when effluent pumps or influent lines reach the high pressure set point. A Start/Stop button is provided to start and stop the plant in auto mode and the acknowledge button is provided to acknowledge any alarms. Flow gpm and totalization for the effluent lines are also displayed. The boxes to the left of the effluent pumps allow operations to adjust milliamp output. The scale for the percent output is 4ma-20ma = 0%-100%. Fourteen buttons are provided at the bottom of each screen to change displays. Underneath the buttons is a window that displays all alarms for sites OU2 and 2/12 as well as all extraction wells.



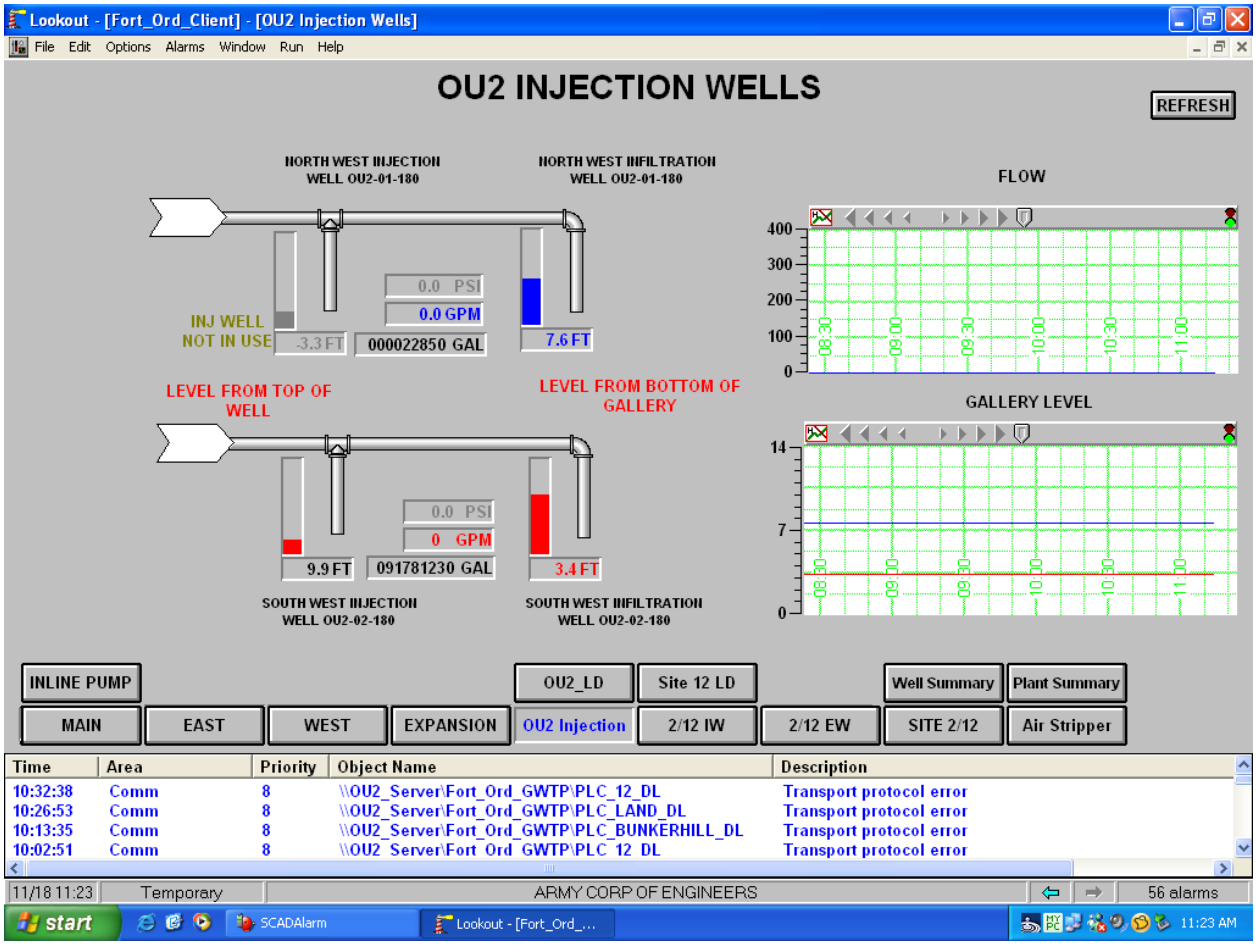
This screen is for the Eastern Network wells. Pump status is indicated by color code. When a pump is not running and in the off position it is grey. When a pump is running and in the auto position it will be green. When a pump is not operating properly according to the SCADA system it will flash yellow. Level is indicated by a bar graph and by a numeric display. Each well has a low level alarm that, when in alarm state, will be displayed as a black indicator light turning red. High pressure alarms will be displayed as text in the empty box below the total flow calculation. A reset button is used to restart the pump after it reaches high pressure. Pressure, level, flow, and flow totals are displayed for each extraction well. A refresh button in the top right will refresh reading from the eastern PLC. The eastern line pressure is trended in the bottom right corner of the screen.



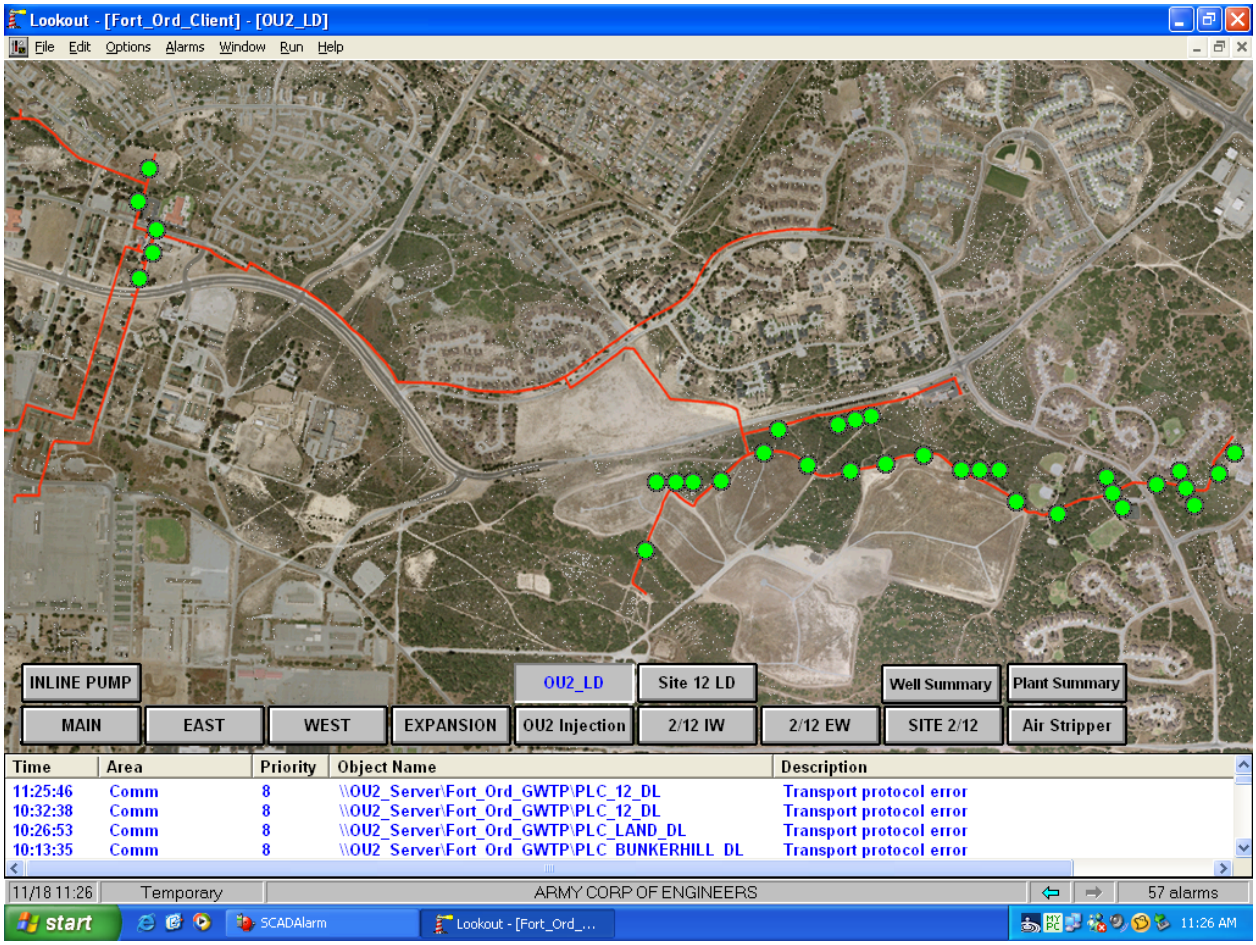
This screen is for the Western Network wells. Pump status is indicated by color code. When a pump is not running and in the off position it is grey. When a pump is running and in the auto position it will be green. When a pump is not operating properly according to the SCADA system it will flash yellow. Level is indicated by a bar graph and by a numeric display. Each well has a low level alarm that, when in alarm state, will be displayed as a black indicator light turning red. High pressure alarms will be displayed as text in the empty box below the total flow calculation and. The reset button provided must be used to restart pump after it reaches high pressure. Pressure, level, flow, and flow totals are displayed for each extraction well. A refresh button in the top right will refresh reading from PLCs.



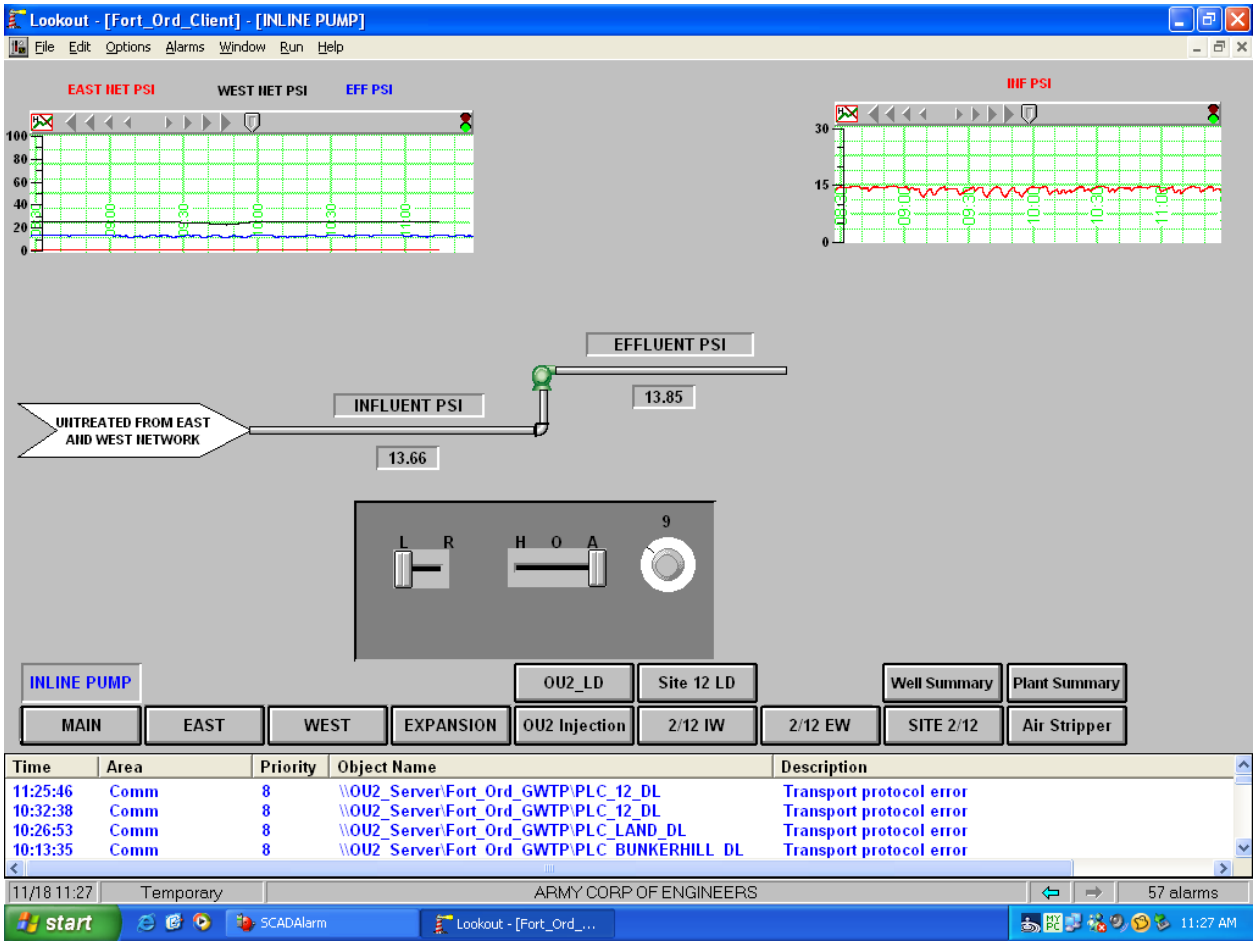
This screen displays the status of the Shoppette, Landfill, CSUMB, and Bunker Hill wells. Pump status is indicated by color code. When a pump is not running and in the off position it is grey. When a pump is running and in the auto position it will be green. When a pump is not operating properly according to the SCADA system it will flash yellow. Level is indicated by a bar graph and by a numeric display. Each well has a low and high level alarm that, when in alarm state, will be displayed as a red indicator light to the right of the pump. High pressure alarms will be displayed next to the reset button below the total flow calculation. The reset button provided must be used to restart pump after it reaches high pressure.



This screen is for the OU2 infiltration and injection wells. Level is indicated by a bar graph and by a numeric display. Level, flow, and flow totals are displayed for the northwest and southwest wells. A refresh button in the top right will force a poll of the injection well PLC. Gallery level and flows are trended on the right half of the screen.



The screen shown above depicts the OU2 leak detection points and alarm status. The red line indicates the location of the pipeline and the green indicator lights display alarm status of the associated leak detector. The leak detectors are green when a leak is not present and yellow when a leak is present.



The inline pump page shows current influent and effluent pressure, and trends the readings in the graphs above. Line pressures from the Eastern and Western networks are trended in the effluent graph. Control of the inline pump is provided via the HOA switch and knob controlling milliamp output.